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ASIAN TRANSPORTATION RESEARCH SOCIETY

Self Efficacy Application for Traffic Accident Prevention among Senior People Drivers in Municipality , Khon Kaen, Thailand.

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ABSTRACT

Descriptive research, Mixed method study both quantitative and qualitative data, aimed to study **Self** Efficacy Application for Traffic Accident Prevention among Senior People Drivers in Municipality ,Khon kaen, Thailand.
The participants were senior people both female and male > 60 yrs 400 persons. Data were collected both qualitative and quantitative method. Data analysis by using SPSS program for quantitative data and content analysis for qualitative data. The results showed that the knowledge of car safety driving ,**perceived self and** expect outcome of car driving among senior people most were in high level, in additional car driving among elderly people was high level also.

The characteristic variables correlation with **safety behavior** of car driver elderly are sex, education, duration of car driving, main occupation, Income/month, and car driving license.

The variable correlation of traffic safety behavior were self-efficacy of driving elderly, and expect outcome of car driving elderly, including car driving behavior of elderly

Keywords: Self Efficacy, Traffic accident prevention, senior people driver,

CHAPTER I INTRODUCTION

1.1 Rationale

The Global status report on road safety 2015, reflecting information from 180 countries, indicates that worldwide the total number of road traffic deaths has plateaued at 1.25 million per year, with the highest road traffic fatality rates (90%)are in medium to low income countries .The world's top five countries, Libya is highest country, Thailand, Malawi, Liberia and the Congo at a rate equal to the death, 35, of 73.40 36.20 33.20 33.70 and, per hundred thousand population, respectively, the World Health Organization (WHO, 2015) Southeast Asia would be predicted most serious of traffic accident problem in the year 2020.

Accident situation in South East Asia and Southeast Asia, 10 countries found that countries with the death rate from road accidents highest is Thailand 36.20 per one hundred thousand population, followed by Vietnam with 24.50, Malaysia 24 ,Myanmar 20.30 and Cambodia 17.40 (WHO, 2015).

Traffic accidents are a serious problem in Thailand in every province. This leads to public health, economic and social problems.

Thailand had already facing to be ageing society since the year 2007. Due to has a population of approximately 7 million old age people, the elderly accounted for 10.7 percent of the entire population of Thailand. The change in the age structure of the population to access the older population is quite a short period of time when compared to many developed countries, the ratio of the population of seniors Thailand will increase from 9.3 percent in 2000 to 19.2 percent in the year 2025, which took about 22 years to increase the proportion of the elderly population to double. While most developed countries have to take about 70 years to 100 years. (Knodel J and Chayovan N, 2008). It's challenge problem have to urgently concern for preparing and problem solving in many aspects especially transportation.

The elderly also one Thailand driving even more than 60 years age, although not as much as the elderly in Europe. However, in the future there will be more elderly more driving in Thailand, because of long life and trend to self reliance in daily life. Driving is the meaningful of freedom, self reliance, So Thai ageing people still driving even more than 60 years old. However Thailand not alert of readiness evaluation for driving of ageing people. Weerasak

Muangpaisal (http://www.si.mahidol.ac.th/sidoctor/e-pl/articledetail.asp?id=417, 2018).

Although the number of traffic accident still high number, this major cause of death, injuries in Thailand including ageing people is high risk group due to changing of physiology. Ageing people faced traffic accident less than youth group because of slowly driving, more experience, more seat belt fasten, no drunk drive, But if ageing people high speed driving , they got accident more than youth group. Most of ageing who are 70 years old, and 80 years old much more accident than youth group 9 times. The cause of accident among ageing people were more than 85 years old, cause of seeing problem and dementia. Including lack of muscle strength, slowly response of any urgently situation, decreasing co ordination of organs, decreasing of concentration and some people have disease such as cataract, glaucoma, Parkinson, cerebrovascular disease, osteoporosis ,heart disease diabetic mellitus and hypertension, in addition aging people were effect from medicines also, some feel sleepy, dizzy, vomiting, confuse, low concentrate and bad decision making.

San Chaiyodsin said that ageing people not necessary to stop driving, because it keep ageing people far from dementia, depressive. 16 researches from The Gerontological Society of America (GSA) found that ageing people who stop driving much more and unhealthy 2 times when compare with same age and same sex who still driving. (http://www.goodlifeupdate.com/20706/healthy-body/older-drive-protect-brain/,2018)

Chatchai promlert said that ageing people most unhealthy were risk of accident so they should be advice for effective driving as follow 1).consult Dr. for driving capacity evaluation 2).avoid driving bad atmosphere such as night, raining, smoke, 3). Avoid driving in rush hour on long distance 4). Ageing people who sickness with heart disease, dementia, Parkinson, severe diabetes mellitus and myoasthenia or muscle weakness. These are high risk of accident should stop driving. (http://www.thaihealth.or.th/,2018) It necessary to make them increase self efficacy.

Self-efficacy is defined as a personal judgment of "how well one can execute courses of action required to deal with prospective situations" Expectations of self-efficacy determine whether an individual will be able to exhibit coping behavior and how long effort will be sustained in the face of obstacles. Individuals who have high self-efficacy will exert sufficient effort that, if well executed, leads to successful outcomes, whereas those with low self-efficacy are likely to cease effort early and fail.(Bandura, 1995)

Self-efficacy affects every area of human endeavor. By determining the beliefs a person holds regarding his or her power to affect situations, it strongly influences both the power a person actually has to face challenges competently

and the choices a person is most likely to make. These effects are particularly apparent, and compelling, with regard to behaviors affecting health

According to self-efficacy theory, self-efficacy-defined as perceived capability to perform a behavior causally influences expected outcomes of behavior, but not vice versa. However, research has shown that expected outcomes causally influence self-efficacy judgments, and some authors have argued that this relationship invalidates self-efficacy theory. Bandura has rebutted those arguments saying that self-efficacy judgments are not invalidated when influenced by expected outcomes

Therefore researchers would like to study the comparison of self efficacy for traffic accident prevention among senior people between female and male including different age group in Municipality , Khon kaen Thailand for improving safety transportation of senior people further.

1.2. Research Question

1. What is difference of traffic accident prevention knowledge among senior people between female and male drivers.?
2. What is difference of self efficacy for traffic accident prevention behavior among senior people between female and male drivers.?
3. What is difference of expect outcome for traffic accident prevention behavior among senior people between female and male drivers.?
4. What is difference of traffic accident prevention among senior people between female and male drivers. .?
5. What is difference of traffic accident prevention among different age groups 60-69,70-79, and > 80 ?
6. What is correlation between personal characteristic , self efficacy and safety behavior.?

1.3 Research Objectives

1. Compare traffic accident prevention knowledge among senior people between female and male drivers.
2.Compare self efficacy for traffic accident prevention behavior among senior people between female and male drivers.
3.Compare expect outcome for traffic accident prevention behavior among senior people between female and male drivers.
4.Compare traffic accident prevention among senior people between female and male drivers.
5.Compare traffic accident prevention among different age groups 60-69,70-79, and > 80
6. Study correlation between personal characteristic , self efficacy and safety behavior.

1.4. Limitation

This research study in only 1 Provinces is Khon Kaen province in the Northeast of Thailand.

1.5. Research Useful.

1.Know self efficacy for traffic accident prevention among senior people driver both female and male.
2.Know expect outcome for traffic accident prevention among senior people driver both female and male.
3.know traffic accident prevention between female and male driver and different age group.
4.know factor correlation with safety behavior among senior people.

1.6. Definition of terms

Self-efficacy is the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations., these beliefs as determinants of how people think, feel, belief, and behave, Individuals who have high self-efficacy will leads to successful outcomes.

Outcome expectations is the beliefs that carrying out a specific behavior will lead to a given outcome, or expect out come were need to be.

Knowledge is information about safety driving follow traffic law in Thailand.

Risk Behaviors are those activities expose people to harm, or dangerous.

Practice is action for car driving of senior people
Senior people is the people both male and female are more than 60 years old.

CHAPTER 2 LITERATRE REVIEW

This research specific focus on road traffic accident situation in the world, Southeast Asia, Thailand, Senior people, self efficacy consequently related research literature was reviewed in the following 7 topics.

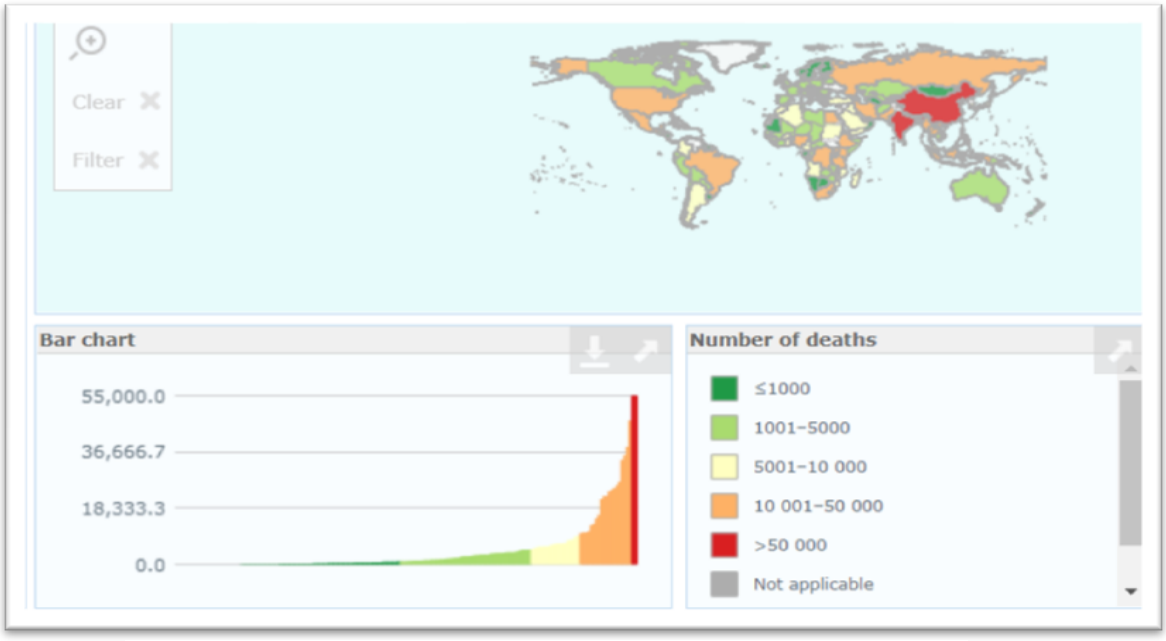
2.1 Road traffic accident situation in the world.

The Global status report on road safety

The Global status report on road safety 2015, reflecting information from 180 countries, indicates that worldwide the total number of road traffic deaths has plateaued at 1.25 million per year, with the highest road traffic fatality rates in low-income countries. In the last three years, 17 countries have aligned at least one of their laws with best practice on seat-belts, drink–driving, speed, motorcycle helmets or child

restraints. While there has been progress towards improving road safety legislation and in making vehicles safer, the report shows that the pace of change is too slow. Urgent action is needed to achieve the ambitious target for road safety reflected in the newly adopted 2030 Agenda for Sustainable Development: halving the global number of deaths and injuries from road traffic crashes by 2020. Made possible through funding from Bloomberg Philanthropies, this report is the third in the series, and provides a snapshot of the road safety situation globally, highlighting the gaps and the measures needed to best drive progress.

Figure 1 **The global number of deaths and injuries from road traffic crashes .**

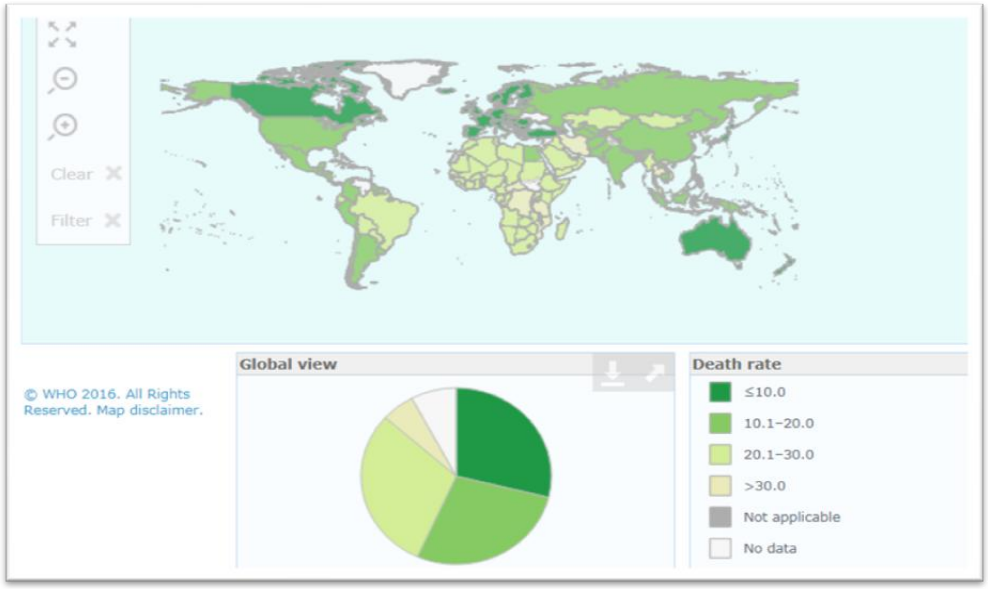


Source : **http://www.who.int/violence_injury_prevention/road** [1 Oct 2017]

2. The road traffic death rate by WHO region and income level

The road traffic death rate by WHO region and income level: In 2013, low- and middle-income countries had higher road traffic fatality rates per 100 000 population (24.1 and 18.4, respectively) compared to high-income countries (9.2). The African region had the highest road traffic fatality rate, at 26.6, while the European region had the lowest rate, at 9.3.

Figure 2 **The road traffic death rate by WHO region and income level**



Source : http://www.who.int/gho/road_safety/en/ . [1 Oct 2018]

More than 1.2 million die and as many as 50 million are injured every year in Road Traffic Injuries (RTIs). The overwhelming majority of these deaths occur in low and middle-income countries (LMICs) and 40% in the four BRIC countries alone. Recent trends suggest this gap is increasing. In the past fifteen years, RTIs have increased by almost 80% in Asia and by 40% in Latin America and Africa. The opposite is true in high-income countries, however, where RTI rates have been on a path of steady decline over several decades.

Beyond the enormous personal suffering they cause, RTIs weaken economic growth, place a huge strain on health care systems, and challenge development objectives. Across LMICs, losses due to RTIs are estimated at USD 100 billion/year, a figure which incorporates immediate direct costs, such as hospital care admissions, and longer term human capital costs associated with RTI victims no longer being able to take part in economic production processes. At national level, this aggregate translates into losses of 1-3% of GDP, a figure comparable to what LMICs receive in development assistance (world Bank,2013)

On 11 May 2011, the Decade of Action for Road Safety 2011-2020 was launched in more than 100 countries, with one goal: to prevent five million road traffic deaths globally by 2020. Moving from the Global Plan for the Decade to national action, many countries have taken measures towards improving road safety, either by developing national plans for the Decade; introducing new laws; or increasing enforcement of existing legislation, among other concrete actions. The recent UN General Assembly resolution on global road safety

sponsored by more than 80 countries gives further impetus to the Decade by calling on countries to implement road safety activities in each of the five pillars of the Global Plan. (world Bank,2013)

2.2 ROAD SAFETY IN THE SOUTH-EAST ASIA REGION 2015 :

The South-East Asia Region contributes 25% of the total global road traffic deaths There are approximately 316, 000 road traffic deaths each year that occur in the South-East Asia Region, accounting for approximately 25% of the world's road traffic deaths. This represents a plateau in the number of deaths, from 315, 000 in 2010 to 316 ,000 in 2013: this stabilization is positive in that it takes place in the context of increasing motorization and population growth in the region. The region's road traffic fatality rate, at 17.0 per 100, 000 population, is below the global rate of 17.4 However, there is considerable variation in fatality rates within the region, ranging from 3.5 per
100, 000 in the Maldives to **36.2 per** 100 000 population in **Thailand.** In the year 2013, low- and middle-income countries had higher road traffic fatality rates per 100 ,000 population
http://www.who.int/violence_injury_prevention/road_safety_status/2015/[9 September 2017] Thailand is the most high rate of injury in Southeast Asia

Figure 3 Rate of injury in Southeast Asia

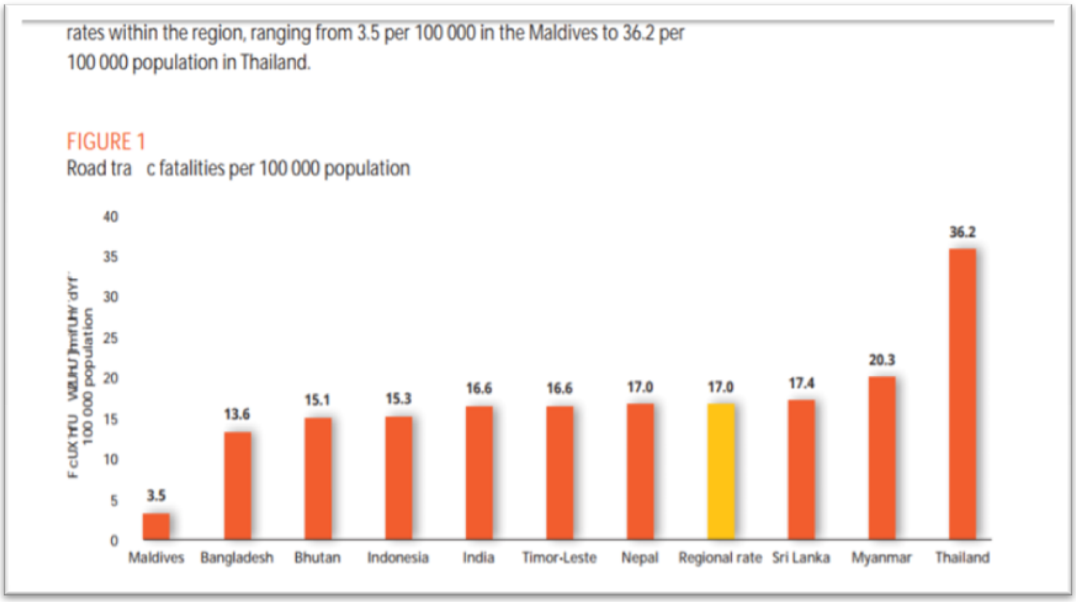
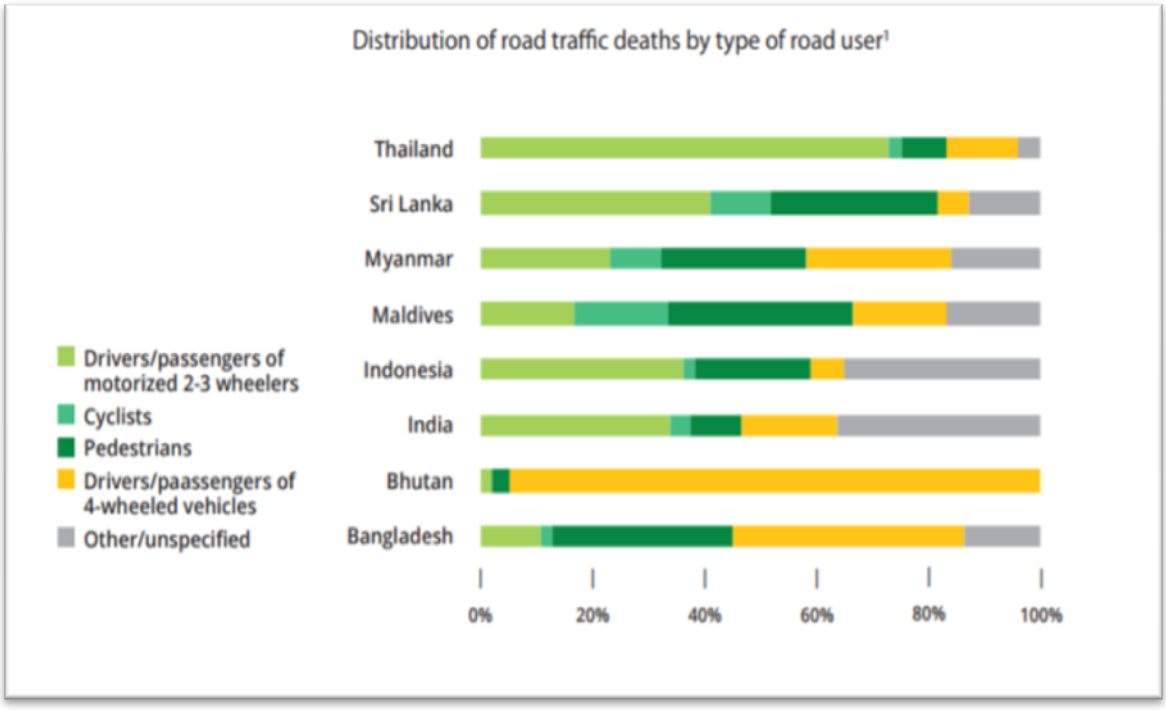
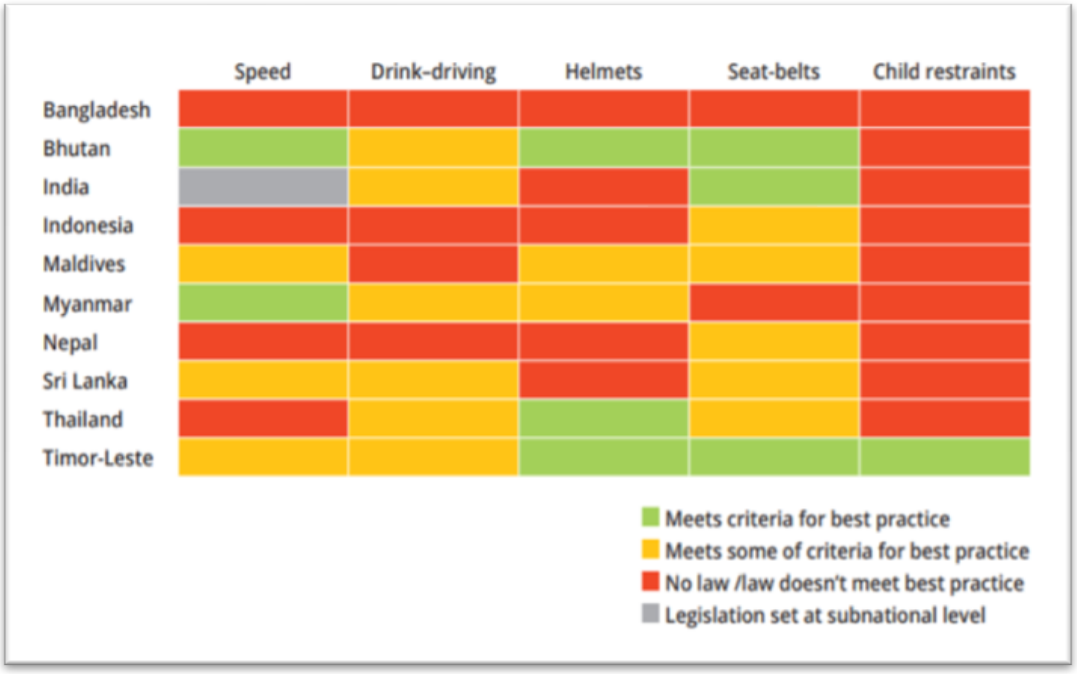


Figure 4 Road of traffic death by type of road user
Source :http://www.who.int/violence_injury_prevention/road_safety_status[9September2017]



However, this regional breakdown of deaths understates the overwhelming burden of deaths among vulnerable road users in all countries except Bhutan (where car occupants are the most affected). There is also much variation in the group most affected: in **Thailand**, for example, 83% of road deaths are among vulnerable road users (with motorcyclists comprising the bulk of these, at 73%), while in Bangladesh, the Maldives and Sri Lanka pedestrians account for approximately a third of road traffic deaths [www.who.int/violence_injury_prevention/road_safety[9September2018]
Countries need to strengthen
Countries need to strengthen road safety legislation Road safety laws improve road user behavior and can be an effective tool in reducing road traffic crashes, injuries and deaths. The most positive changes to road user behavior happen when road safety legislation is supported by strong and sustained enforcement, and where the public is made aware of the reasons behind the new law and the consequences of noncompliance. This section reports on an assessment of countries' current legislation to meet five key behavioral risk factors for road traffic injuries: speed, drink–driving, failure to use motorcycle helmets, seat-belts and child restraints. There is a strong evidence base showing the positive impacts that legislation on each of these risk factors can have on reducing crashes, injuries and deaths. A summary of the countries' legislation on the 5 risk factors is shown.

Figure 5 the countries' legislation on the 5 risk factors .



2.3 Road Traffic Accidents in Thailand.

2.3 Traffic Accident situation in Thailand

Thailand Second in the World (behind Libya) for Number of Road Accident Deaths http://www.thaiwebsites.com/caraccidents.asp [19 August 2018]

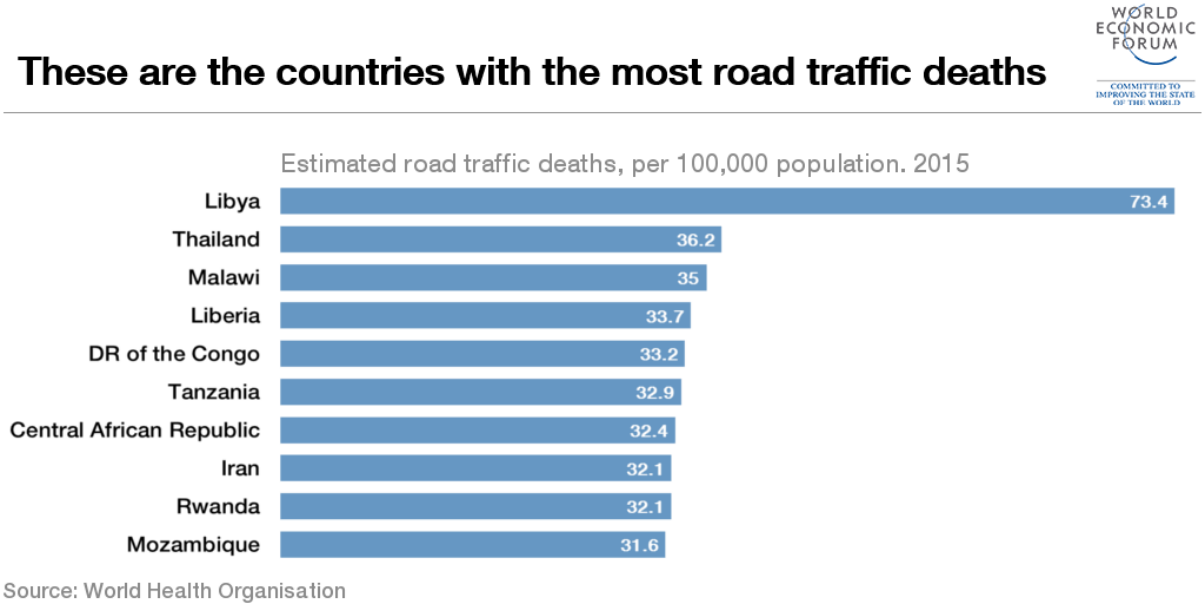


Figure 6 Countries with the most road traffic deaths.

The WHO states that according to the Bureau of Policy and Strategy, Office of Permanent Secretary, Ministry of Public Health of Thailand, there were 14,059 traffic fatalities on the road in Thailand, in 2012 (latest available data). We were not able to find a direct report of these data on the website of the Ministry of Public Health.

Interesting is the number of deaths when categorized by type of road user. The amount of drivers (and passengers) killed on motorcycles (including 3-wheelers, we assume tuktuks) is simply stagering. For a large part, these road users are from the low-income category of people, and one dares to suggest that this is part of the reason not more is done to improve road safety in Thailand. Not shown on this graph : There are about as much accidents in Bangkok as in the rest of Thailand combined. However, the number of deaths and injuries is much lower.

The WHO estimates the number of road traffic deaths in 2013 at 24,237 persons, or a Rate per 100,000 population for 36.2
According to this estimate, Thailand in 2013 ranks SECOND in the WORLD, after Libya, which is in the midst of what can be at least called 'civil unrest'. Though based on data from 3 years ago, this statistic is now invariably mentioned in any article in local newspapers, related to the traffic deaths issue. The number of deaths may be an estimation, but we never noticed it challenged by Thai authorities.

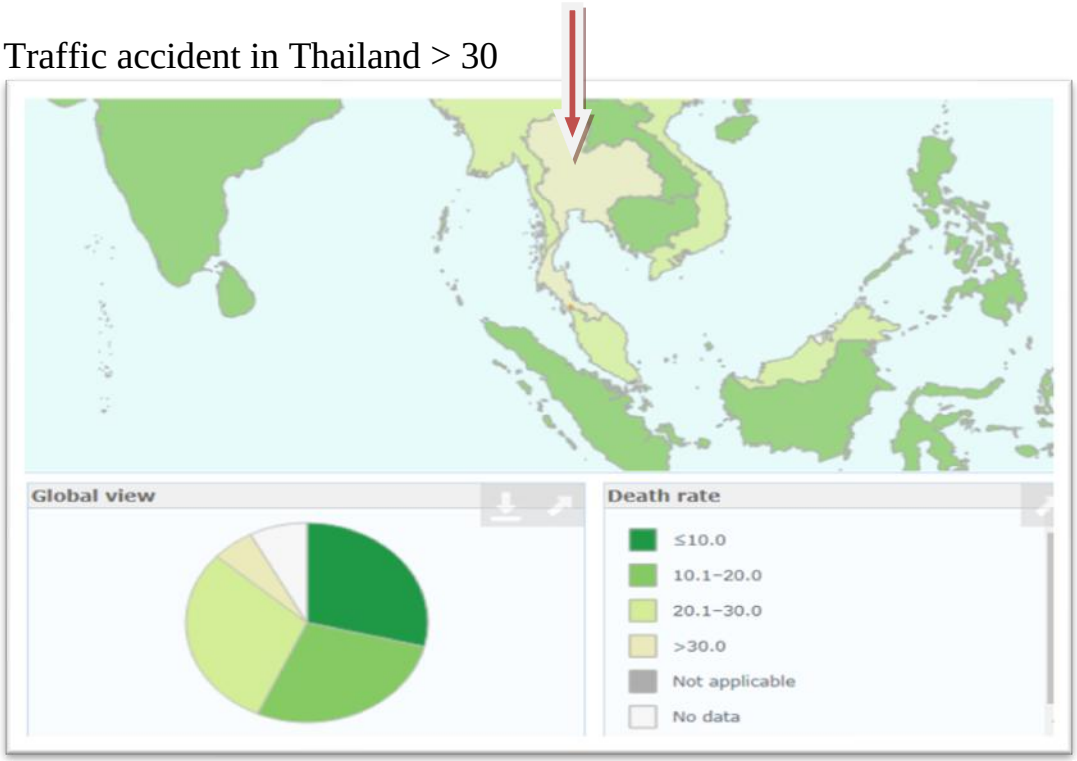
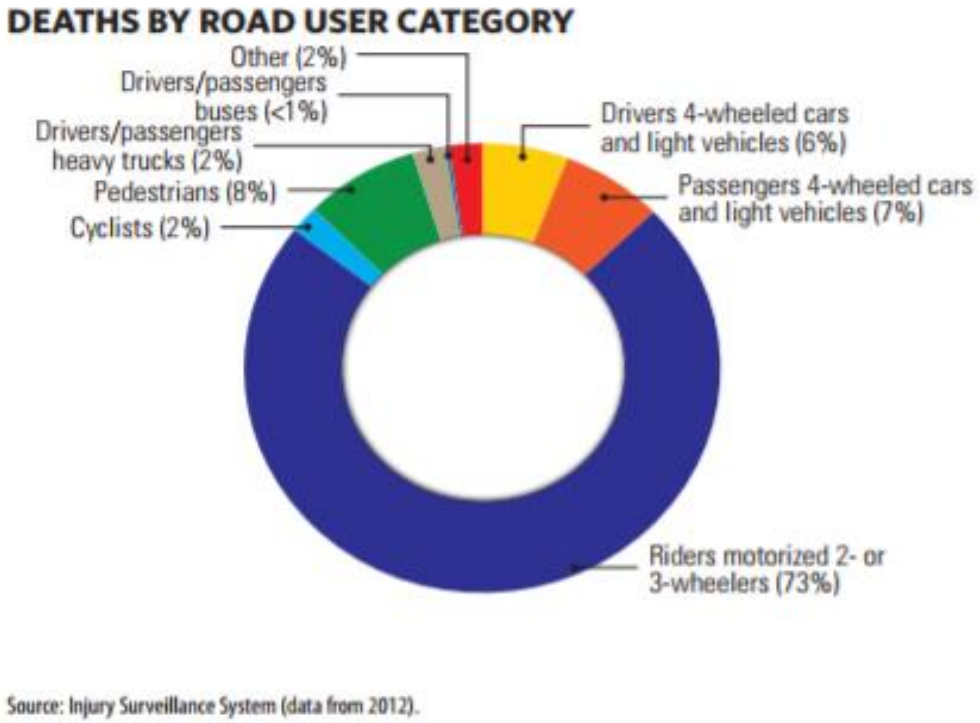


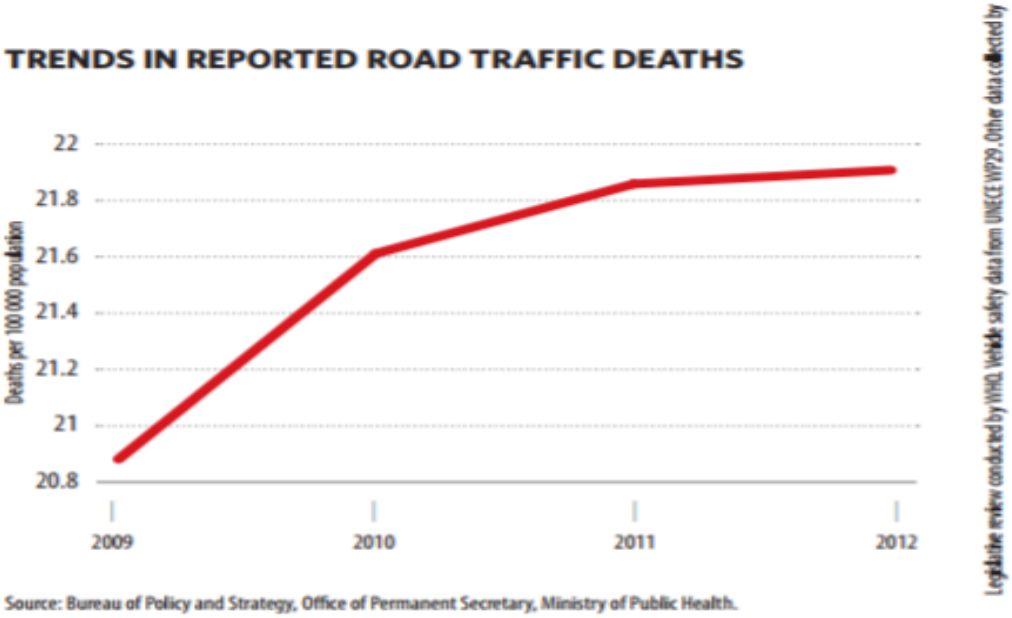
Figure 7 **Traffic accident in Thailand**
Source : http://www.who.int/gho/road_safety/mortality/ [29 September 2018]



Source: :http://www.who.int/violence_injury_prevention/road_safety_status/2015/[2Sept2017]

Figure 8 Death by road user categorize

Figure 9 Trends in reported road traffic deaths



Source: :http://www.who.int/violence_injury_prevention/road_safety_status/2015/[2Sept2017]

The Seven Days around New Year

http://www.thaiwebsites.com/caraccidents.asp [19 August 2017]

There are two periods each year when the local media concentrate their attention towards the number of casualties on the road. They are the 'Western' New Year, and the Thai New Year (Songkran). These constitute prolonged holidays. The government always makes sure people get at least 5 days off, so they can visit their relatives (in the provinces). Since many years, daily statistics are published in the newspapers taking stock of the number of accidents and the number of deaths on the road.

This interest by the local press, coincites each time with the government in charge issuing various orders, and making promises that 'this time things will be different', and the number of deaths will be lower than in the previous year. Sometimes, it looks like this promise is fulfilled, but then again, wishful thinking is prevalent, and improvements one year, are followed by disappointment the next.

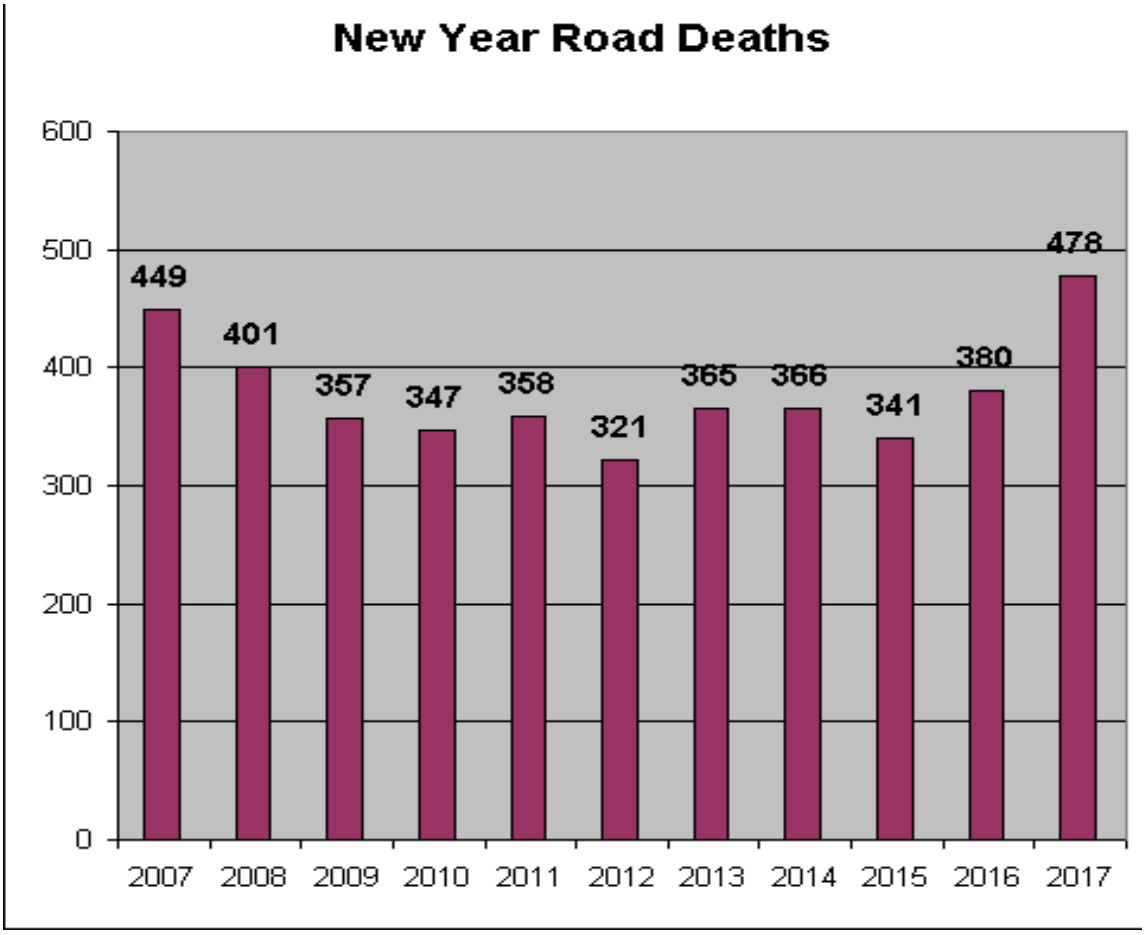


Figure 10 New Year road death in Thailand

Source : http://www.thaiwebsites.com/caraccidents.asp [19 August 2018]

In the period from December 29, 2016 to January 4, 2017 : 478 people got killed by accidents on the roads of Thailand. 4,128 injuries were sustained and 3,919 reported road accidents occurred. This is the highest number of deaths since 2006. From the graph below it looks like there was some improvement between 2009 and 2015, but this year was a bit of wake-up call. In one horrendous accident between a van and a truck 25 people were killed. [so now the government plans to take vans off the road]

2.4 Senior People

The world's population is ageing: virtually every country in the world is experiencing growth in the number and proportion of older persons in their population.
According to data from World Population Prospects: the 2017 Revision, the number of older persons those aged 60 years or over is expected to more than double by 2050 and to more than triple by 2100, rising from 962 million globally in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100. Globally, population aged 60 or over is growing faster than all younger age groups.
Globally, population aged 60 or over is growing faster than all younger age groups

In 2017, there are an estimated 962 million people aged 60 or over in the world, comprising 13 per cent of the global population. The population aged 60 or above is growing at a rate of about 3 per cent per year. Currently, Europe has the greatest percentage of population aged 60 or over (25 per cent). Rapid ageing will occur in other parts of the world as well, so that by 2050 all regions of the world except Africa will have nearly a quarter or more of their populations at ages 60 and above. The number of older persons in the world is projected to be 1.4 billion in 2030 and 2.1 billion in 2050, and could rise to 3.1 billion in 2100.

Globally, the number of persons aged 80 or over is projected to triple by 2050, from 137 million in 2017 to 425 million in 2050. By 2100 it is expected to increase to 909 million, nearly seven times its value in 2017.

Table 1 Population aged 60 years or over and aged 80 years or over for the world, Development group region and income group,2000,2015,2030,2050

	Persons aged 60 years or over (millions)				Percentage change		Distribution of older persons (percentage)			
	2000	2015	2030	2050	2000-2015	2015-2030	2000	2015	2030	2050
World	607.1	900.9	1402.4	2092.0	48.4	55.7	100.0	100.0	100.0	100.0
Development groups										
More developed regions	231.3	298.8	375.2	421.4	29.2	25.6	38.1	33.2	26.8	20.1
Less developed regions	375.7	602.1	1027.2	1670.5	60.3	70.6	61.9	66.8	73.2	79.9
Other less developed countries	341.9	550.1	938.7	1484.9	60.9	70.6	56.3	61.1	66.9	71.0
Least developed countries	33.9	52.1	88.5	185.6	53.8	70.0	5.6	5.8	6.3	8.9
Regions										
Africa	42.4	64.4	105.4	220.3	51.9	63.5	7.0	7.2	7.5	10.5
Asia	319.5	508.0	844.5	1293.7	59.0	66.3	52.6	56.4	60.2	61.8
Europe	147.3	176.5	217.2	242.0	19.8	23.1	24.3	19.6	15.5	11.6
Latin America and the Caribbean	42.7	70.9	121.0	200.0	66.1	70.6	7.0	7.9	8.6	9.6
Oceania	4.1	6.5	9.6	13.2	56.2	47.4	0.7	0.7	0.7	0.6
Northern America	51.0	74.6	104.8	122.7	46.4	40.5	8.4	8.3	7.5	5.9
Income groups										
High-income countries	230.8	309.7	408.9	483.1	34.2	32.0	38.0	34.4	29.2	23.1
Upper-middle-income countries	195.2	320.2	544.9	800.6	64.0	70.2	32.1	35.5	38.9	38.3
Lower-middle-income countries	159.7	237.5	393.9	692.5	48.8	65.9	26.3	26.4	28.1	33.1

Figure 11 Population aged 60 and over and aged 80 and over by region

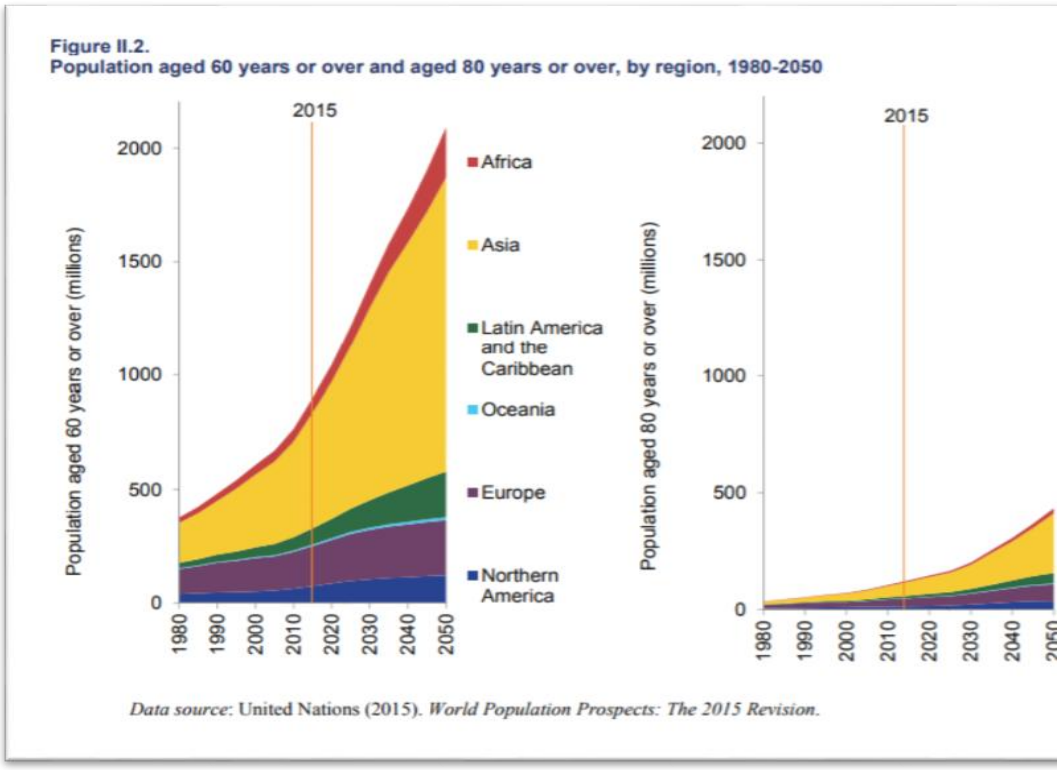


Figure 12 Population aged 60-79 and aged 80 and over by income group.

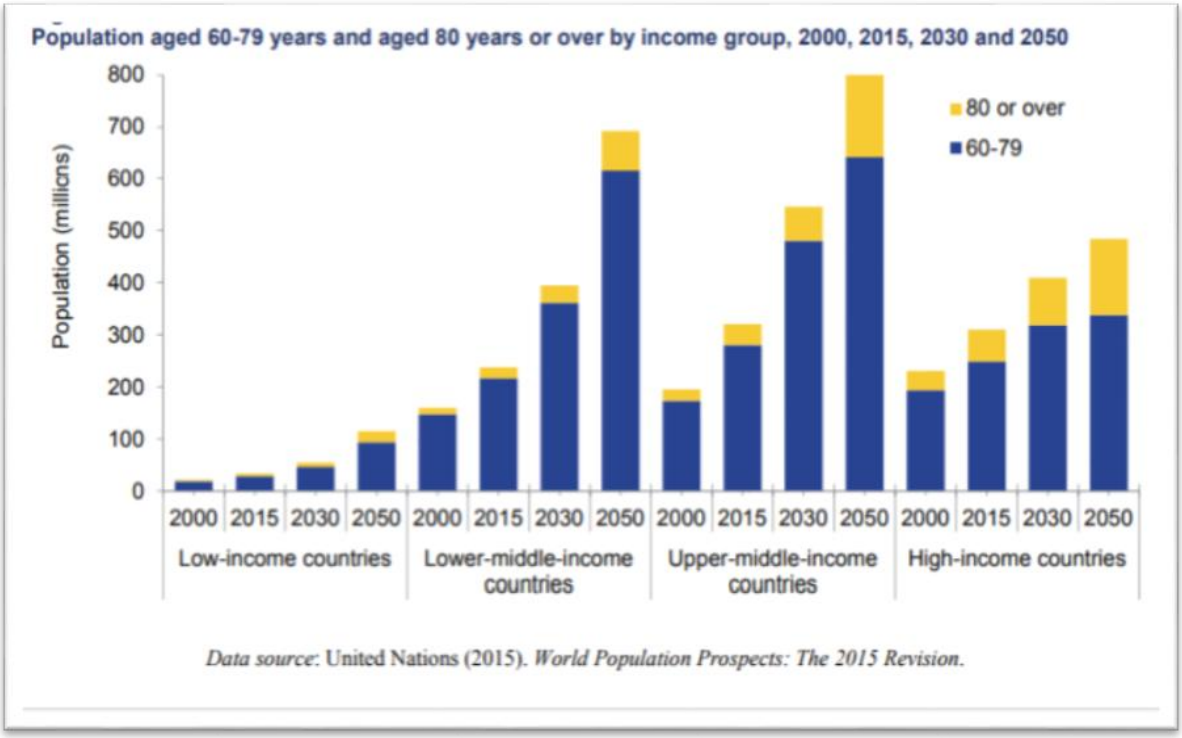


Figure 13 Global older population by age and sex 2015 and 2050

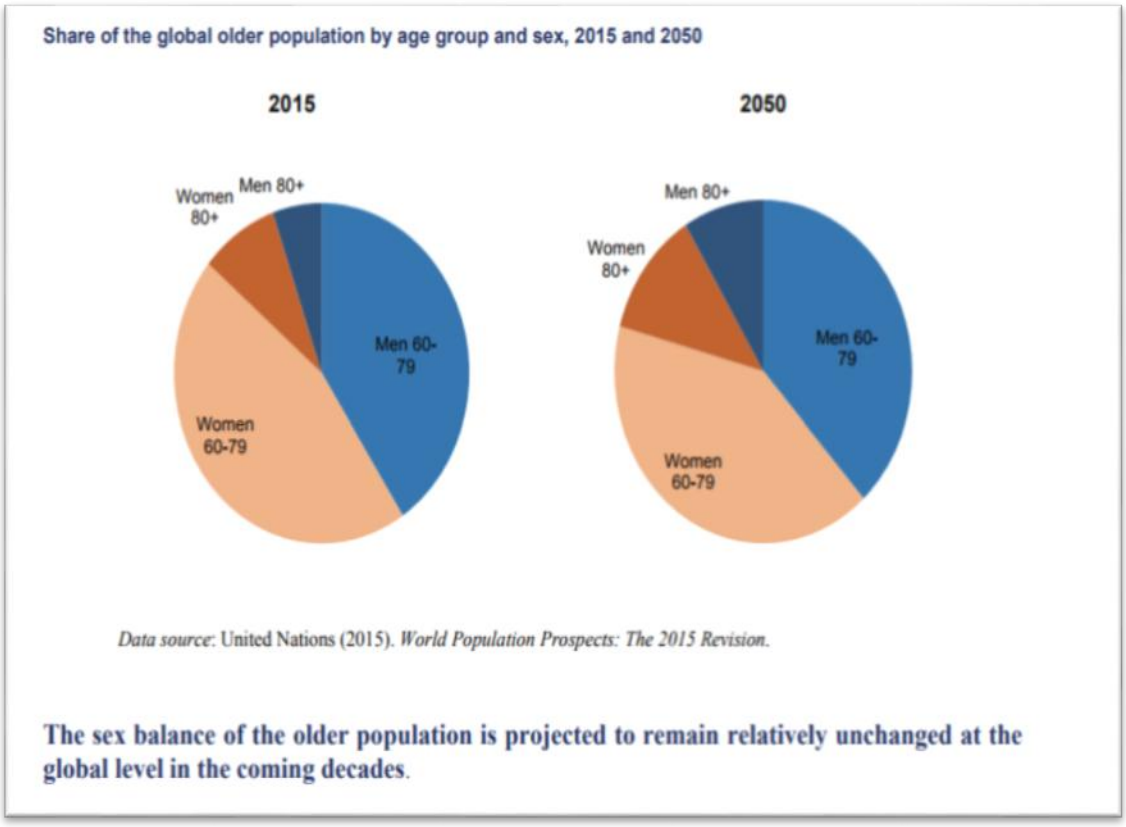
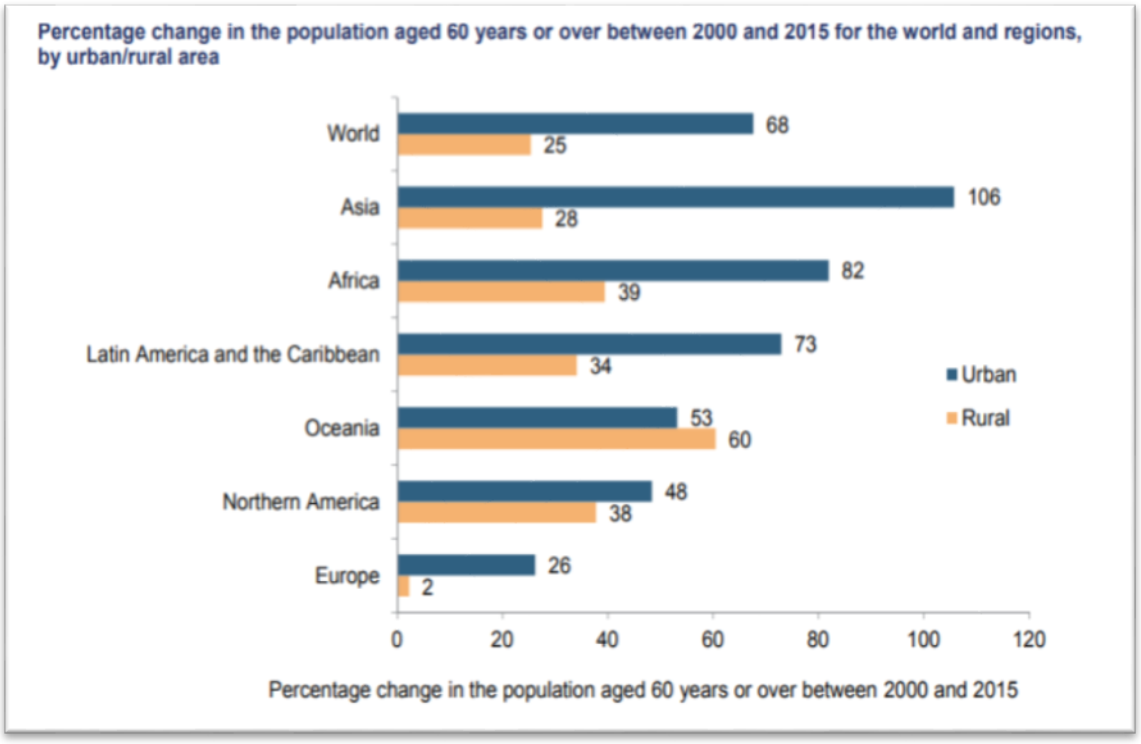


Figure 14 Population age between 2000 and 2015 for world and region in urban and rural area.



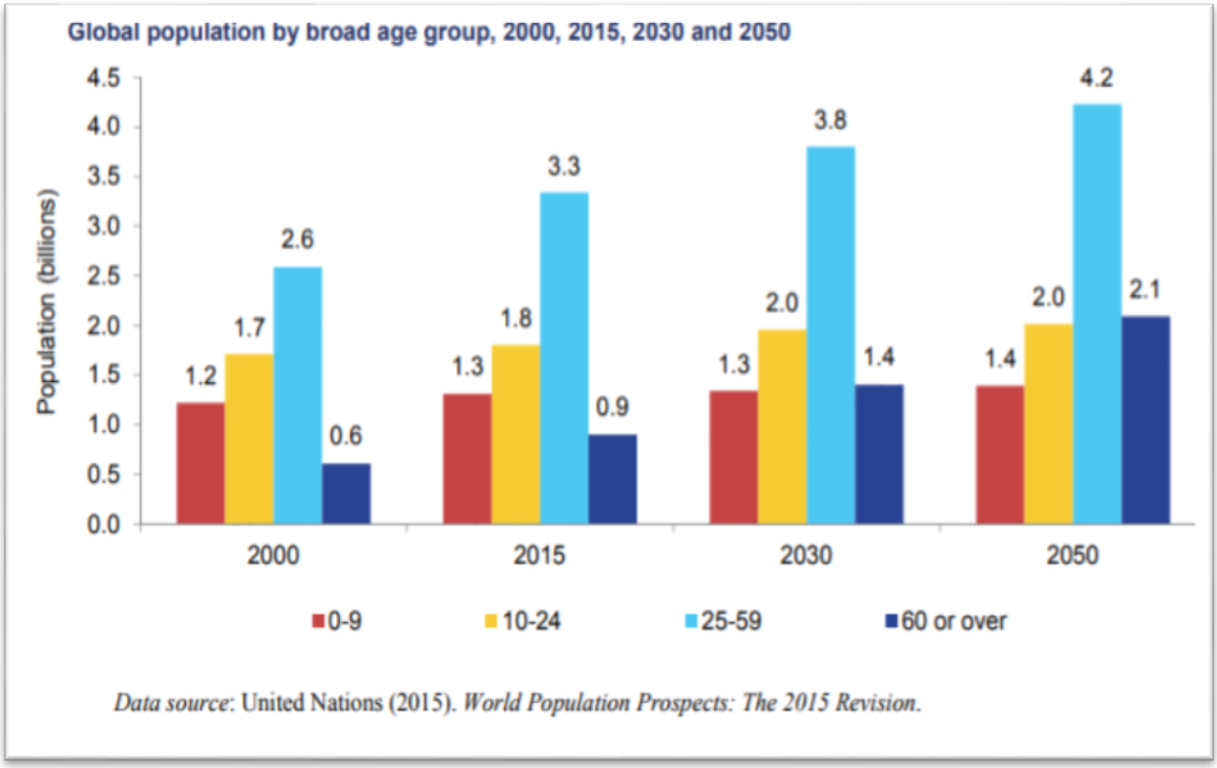
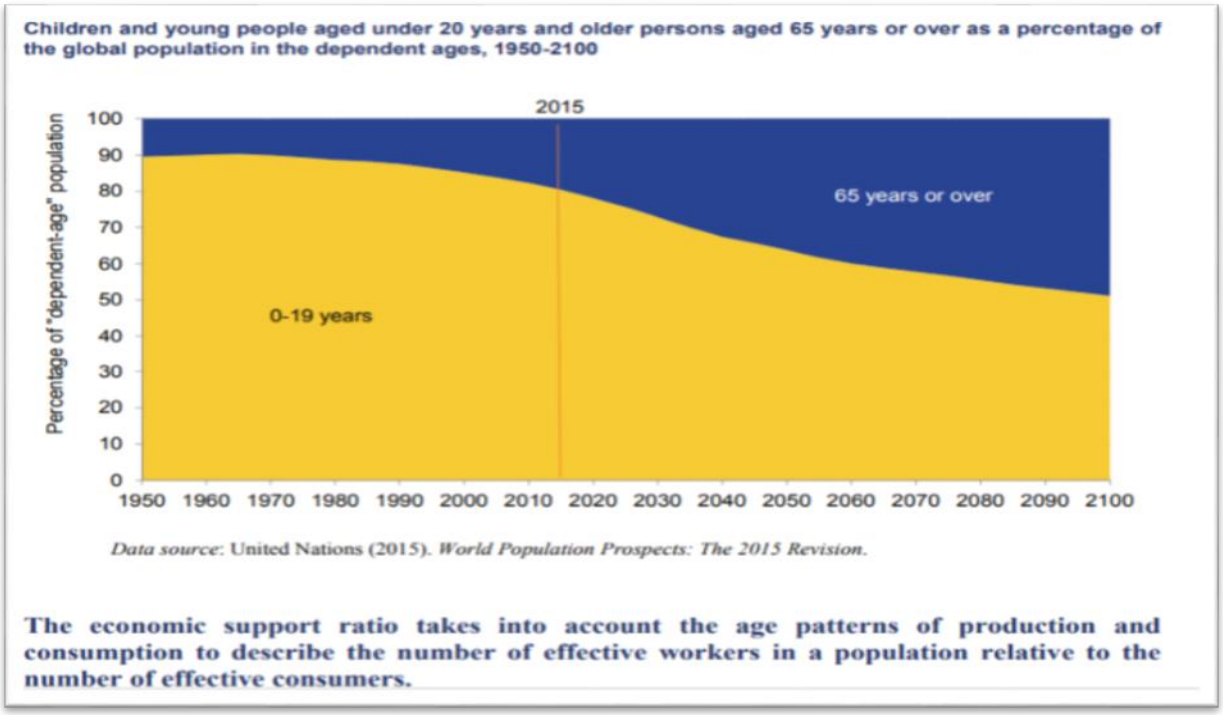


Figure 15 Population age by aged group between 2000, 2015,2030 ,2050

Figure 16 Dependent age between the population 0-19 and . 0ver 65 year group.



2.5 Senior people in Thailand

Senior Society: Thailand to be aging society in 10 years

The government recently revealed statistics showing that Thailand will become an aging society in a decade.

The Ministry of Social Development and Human Security revealed that, by that time, people over 60 years old will make up 20 percent of the population while people ages 65 and above will account for 14 percent.

An aging society is one in which the median age is increasing.

Though it sounds grim, an aging population is often related to becoming an advanced society. A larger number of older people means that citizens are living longer and a decline in younger people means that couples are waiting longer to have kids and having fewer of them, a phenomena often related to pursuing education and career before starting a family.

In light of the aging population, the Thai government is trying to provide more and better services to seniors including: more access to healthcare, jobs for able-bodied seniors, and continued education to keep older minds active during their golden years, reported Thai News Bureau.

Secretary-General to the Office of the Education Council Kamol Rodklai said the 20-year national education plan clearly states that people of all ages, including the elderly, are entitled to education. The plan focuses on encouraging Thais to be good citizens and to learn skills that are essential to 21st Century careers through various educational platforms.

Healthy seniors can learn and use their skills to make a living, even after they reach the age of retirement. The government wants the elderly to lead meaningful lives. With their considerable experience, senior citizens can also inspire and educate younger generations to make positive contributions to the country.

(https://coconuts.co/bangkok/news/senior-society-thailand-aging-society-10-years/)

Population ageing in Thailand
Demographic Trends of Population Ageing

During the past several decades, Thailand has been one of the most successful countries in bringing down its fertility level within a short period of time. The total fertility rate has declined from over 6 births per woman in the mid 1960s to below 2 in the mid-1990s (Table 1). During the same period, life expectancy at birth increased from 55.2 years to 69.9 years for men and 61.8 years to 74.9 years for women. In the coming decades, besides the lowering of the growth rate, a major demographic consequence of this rapid fertility reduction will be an inevitable ageing of the population. Even more dramatic will be the rapid increase in the absolute size of the older population (aged 60 and over), a result of past high fertility levels and substantial declines of mortality.

Pyramid of Thai population is changing , Most population in the year 1990 is children ,20 years later found that most of people was working age , and trend to be ageing in present and in the future as figure.

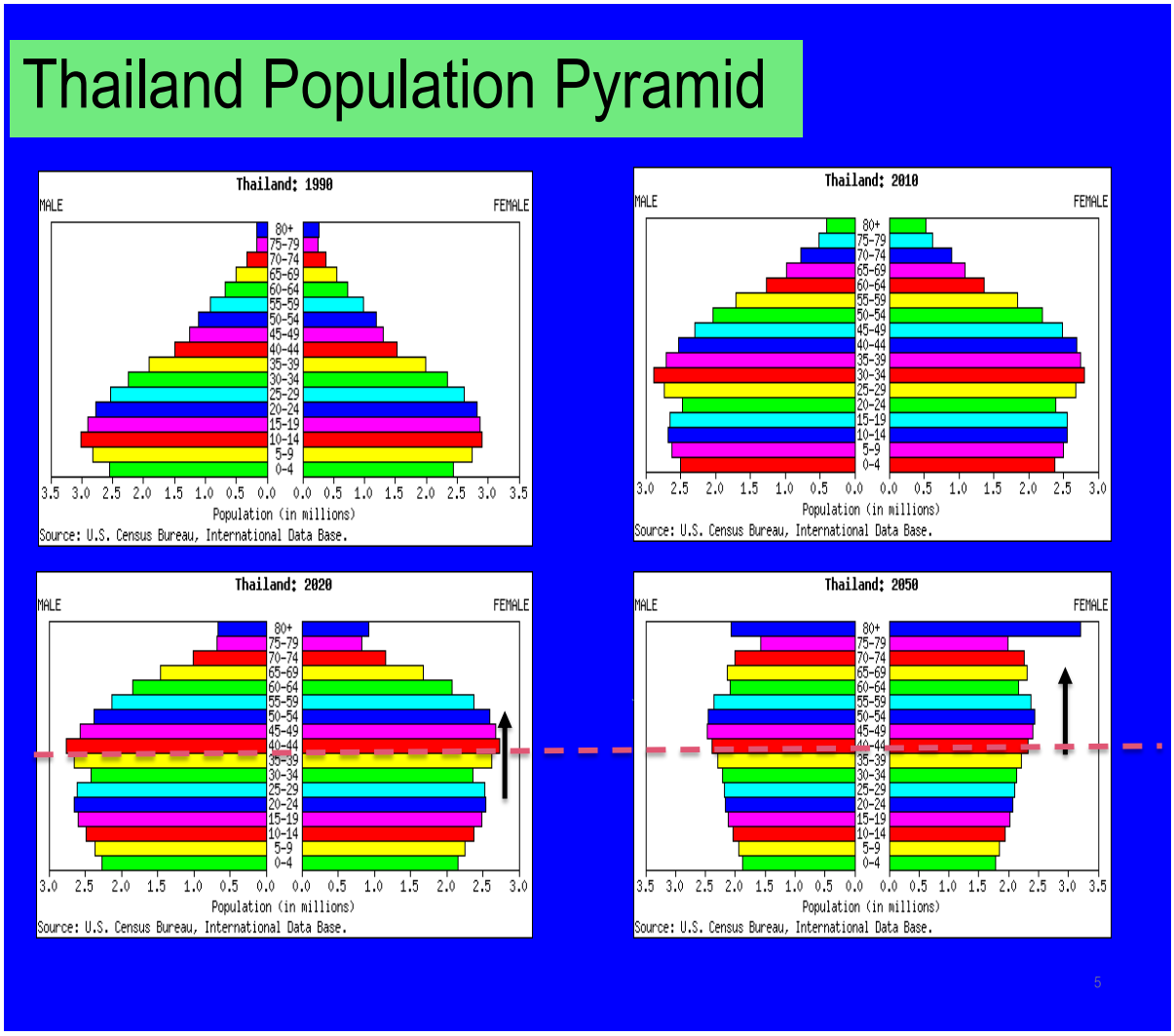


Figure 17 Pyramid of Thai Population

2.6 Senior people and driving.

In 2015, there were more than 40 million licensed drivers ages 65 and older in the United States.[1] Driving helps older adults stay mobile and independent. But the risk of being injured or killed in a motor vehicle crash increases as you age. Thankfully, there are steps that older adults can take to stay safer on the roads.[https://www.cdc.gov/motorvehiclesafety/older_adult_drivers/index.html, 1 September 2018]

How big is the problem?

- In 2014, more than 5,700 older adults were killed and more than 236,000 were treated in emergency departments for motor vehicle crash injuries. This amounts to 16 older adults killed and 648 injured in crashes on average every day.
- There were more than 40 million licensed older drivers in 2015, which is a 50 percent increase from 1999.

Highway Statistics 2015

Distribution of Licensed Drivers - 2015 By Sex and Percentage in each Age Group and Relation to Population

Federal Highway Administration, Department of Transportation (US). Highway Statistics 2015. Washington (DC): FHWA; September 2016.[cited 2016 Dec 21]. Available from URL: https://www.fhwa.dot.gov/policyinformation/statistics/2015/dl20.cfm [1September 2018]

Table 2 Distribution of Licensed Drivers - 2015 By Sex and Percentage in each Age Group and Relation to Population

	MALE DRIVERS			FEMALE DRIVERS			TOTAL DRIVERS		
	NUMBER	PERCENT OF TOTAL DRIVERS	DRIVERS AS PERCENT OF AGE GROUP 1/	NUMBER	PERCENT OF TOTAL DRIVERS	DRIVERS AS PERCENT OF AGE GROUP 1/	NUMBER	PERCENT OF TOTAL DRIVERS	DRIVERS AS PERCENT OF AGE GROUP 1/
UNDER 16	32,495	0.0	1.5	32,620	0.0	1.6	65,115	0.0	1.5
16	527,382	0.5	24.7	537,502	0.5	26.3	1,064,884	0.5	25.4
17	966,677	0.9	45.1	953,781	0.9	46.5	1,920,458	0.9	45.8
18	1,304,619	1.2	60.5	1,245,801	1.1	60.4	2,550,420	1.2	60.5
19	1,530,017	1.4	70.0	1,459,755	1.3	70.2	2,989,772	1.4	70.1
(19 AND UNDER)	4,361,190	4.1	40.4	4,229,459	3.8	41.0	8,590,649	3.9	40.7
20	1,645,437	1.5	73.4	1,578,873	1.4	74.4	3,224,310	1.5	73.9
21	1,707,768	1.6	74.6	1,660,552	1.5	76.6	3,368,320	1.5	75.6
22	1,791,158	1.7	76.8	1,740,421	1.6	79.2	3,531,579	1.6	78.0
23	1,857,286	1.7	77.8	1,831,076	1.7	80.9	3,688,362	1.7	79.3
24	1,912,171	1.8	79.1	1,905,706	1.7	82.2	3,817,877	1.8	80.6
(20-24)	8,913,820	8.3	76.4	8,716,628	7.9	78.7	17,630,448	8.1	77.5
25-29	9,599,910	8.9	84.1	9,665,917	8.8	87.5	19,265,827	8.8	85.8
30-34	9,483,821	8.8	87.1	9,635,915	8.7	89.3	19,119,736	8.8	88.2

	MALE DRIVERS			FEMALE DRIVERS			TOTAL DRIVERS		
	NUMBER	PERCENT OF TOTAL DRIVERS	DRIVERS AS PERCENT OF AGE GROUP 1/	NUMBER	PERCENT OF TOTAL DRIVERS	DRIVERS AS PERCENT OF AGE GROUP 1/	NUMBER	PERCENT OF TOTAL DRIVERS	DRIVERS AS PERCENT OF AGE GROUP 1/
35-39	8,948,342	8.3	88.0	9,139,345	8.3	89.6	18,087,687	8.3	88.8
40-44	8,976,495	8.3	89.5	9,130,641	8.3	89.6	18,107,136	8.3	89.6
45-49	9,439,868	8.8	91.3	9,547,861	8.6	90.8	18,987,729	8.7	91.1
50-54	10,129,724	9.4	92.4	10,358,348	9.4	91.1	20,488,072	9.4	91.7
55-59	9,858,801	9.2	93.0	10,209,251	9.2	91.1	20,068,052	9.2	92.0
60-64	8,621,325	8.0	94.6	9,025,845	8.2	90.7	17,647,170	8.1	92.5
65-69	7,217,544	6.7	95.0	7,570,860	6.9	89.4	14,788,404	6.8	92.0
70-74	4,974,735	4.6	93.9	5,257,499	4.8	85.0	10,232,234	4.7	89.1
75-79	3,267,202	3.0	90.5	3,566,555	3.2	79.0	6,833,757	3.1	84.1
80-84	2,157,345	2.0	89.4	2,364,088	2.1	69.8	4,521,433	2.1	78.0
85 AND OVER	1,699,564	1.6	94.4	2,016,567	1.8	57.1	3,716,131	1.7	69.7
TOTAL	107,649,686	100.0	85.0	110,434,779	100.0	83.2	218,084,465	100.0	84.1

1/ These percentages are computed using population estimates of the Bureau of the Census. Under-16 age group is compared to 14 and 15-year-old population estimates; the other age brackets coincide with those from the Bureau of the Census.

Figure 18 Driver kill in road accident in the year 2011

2.7 **Self efficacy Theory**

2.7.1.What Is Self-Efficacy?

According to Albert Bandura, self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations." In other words, self-efficacy is a person's belief in his or her ability to succeed in a particular situation. Bandura described these beliefs as determinants of how people think, behave, and feel.

Self-efficacy is an individual's belief in his or her innate ability to achieve goals. Albert Bandura defines it as a personal judgment of "how well one can execute courses of action required to deal with prospective situations" .Expectations of self-efficacy determine whether an individual will be able to exhibit coping behavior and how long effort will be sustained in the face of

obstacles. Individuals who have high self-efficacy will exert sufficient effort that, if well executed, leads to successful outcomes, whereas those with low self-efficacy are likely to cease effort early and fail. Psychologists have studied self-efficacy from several perspectives, noting various paths in the development of self-efficacy; the dynamics of self-efficacy, and lack thereof, in many different settings; interactions between self-efficacy and self-concept; and habits of attribution that contribute to, or detract from, self-efficacy. Kathy Kolbe adds, "Belief in innate abilities means valuing one's particular set of cognitive strengths. It also involves determination and perseverance to overcome obstacles that would interfere with utilizing those innate abilities to achieve goals."

Self-efficacy affects every area of human endeavor. By determining the beliefs a person holds regarding his or her power to affect situations, it strongly influences both the power a person actually has to face challenges competently and the choices a person is most likely to make. These effects are particularly apparent, and compelling, with regard to behaviors affecting health.

Therefore could summarize that self-efficacy is the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations., these beliefs as determinants of how people think, feel, belief, and behave, Individuals who have high self-efficacy will leads to successful outcomes".

2.7.2 Self-concept theory

Self-concept theory seeks to explain how people perceive and interpret their own existence from clues they receive from external sources, focusing on how these impressions are organized and how they are active throughout life. Successes and failures are closely related to the ways in which people have learned to view themselves and their relationships with others. This theory describes self-concept as learned (i.e., not present at birth); organized (in the way it is applied to the self); and dynamic (i.e., ever-changing, and not fixed at a certain age)

Therefore could summarize that this theory seeks to explain how people perceive and interpret from external sources, impressions are organized and active throughout life. Based on they learned, organized, and dynamic

2.7.3 Factors affecting self-efficacy

Bandura identifies four factors affecting self-efficacy.

1) Mastery Experiences

Is experiencing the results of self-efficacy first hand. The key to mastery is approaching life with dedicated efforts and experimenting with realistic but

challenging goals. Essential to mastery is also acknowledging the satisfaction of goals that are achieved.

Easy success with little effort can lead to us to expect rapid results which can in turn make us easily discouraged by failure (Bandura, 2008).

Experiencing failure is important so that we can **build resilience** to it. This is done by treating every failure as a learning opportunity and a chance to reach competence with a different approach.

2) Social Modeling

This means choosing role-models that can demonstrate their self-efficacy. Observing those who employ this in their lives and have reached their goals despite adversity can provide great motivation.

Bandura notes that due to modern technology, it is not necessary to draw role-models from one's own social surroundings. The internet and other digital resources can provide windows into the lives of many inspiring models.

3) Social Persuasion

This is about 'finding the right mentor'. While social modeling refers to the observation of a role model, social persuasion is about having others directly influence one's self-efficacy by providing opportunities for mastery experiences in a safe and purposeful manner.

Due to the specific nature of self-efficacy strengthening experiences (avoiding easy successes and overwhelming failures) it essential to have a mentor that is "knowledgeable and practice[s] what they preach" (Bandura, 2008).

4) States of physiology

Our emotions, moods, and physical state can influence our interpretation of self-efficacy. It is easy to judge oneself with bias based on the state one in when a failure occurs.

To feel 'tension, anxiety, and weariness' is normal, but society has negative perspectives on such states, leading to a stronger sense of failure in the wake of these feelings. **Positive and negative emotions** act as magnets to further influence one's sense of self-efficacy, especially in the case of a depressed mood when control can feel out of reach.
Introspection and education act as combatants to prevent these physical states from being interpreted negatively. By recognizing that it is normal and okay to experience such states in life, while working to "relieve anxiety and depression, build physical strength and stamina, and change negative misinterpretations of physical and affective states" (Bandura, 2008), self-efficacy can be interpreted

in a more salient way. The **strength self-efficacy scale** is one tool which can help build insight and introspection.

Therefore could summarize that four factors affecting self-efficacy were, , mastery experiences, social modeling social Persuasion, states of physiology.

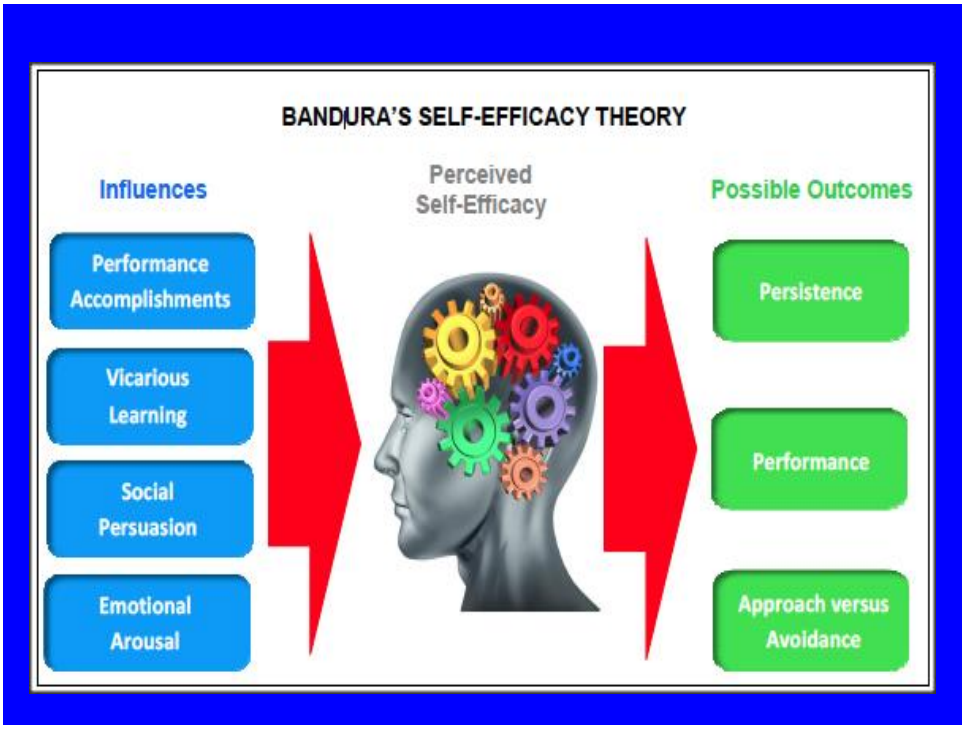


Figure 19 Bandura's Self Efficacy Theory

2.7.4 Clarification and distinctions.

1. **Self-efficacy versus Efficacy**
   Unlike efficacy, which is the power to produce an effect in essence, competence the term self-efficacy is used, by convention, to refer to the belief (accurate or not) that one has the power to produce that effect by completing a given task or activity related to that competency. Self-efficacy is the belief in one's efficacy.
2. **Self-efficacy versus Self-esteem**
   Self-efficacy is the perception of one's own ability to reach a goal; self-esteem is the sense of self-worth. For example, a person who is a terrible rock climber would probably have poor self-efficacy with regard to rock climbing, but this will not affect self-esteem if the person doesn't rely on rock climbing to determine self-worth. On the other hand, one might have enormous confidence with regard to rock climbing, yet set such a high standard, and base enough of self-worth on rock-climbing skill, that self-esteem is low. Someone who has high self-efficacy in general but is poor at rock climbing might have misplaced confidence, or believe that improvement is possible.

3. Self-efficacy versus Confidence

According to Albert Bandura, "the construct of self-efficacy differs from the colloquial term 'confidence.' Confidence is a nonspecific term that refers to strength of belief but does not necessarily specify what the certainty is about. I can be supremely confident that I will fail at an endeavor. Perceived self-efficacy refers to belief in one's agentive capabilities, that one can produce given levels of attainment. A self-efficacy belief, therefore, includes both an affirmation of a capability level and the strength of that belief. Confidence is a catchword rather than a construct embedded in a theoretical system."

Stajkovic (2006) conceptualizes self-efficacy as one manifest variable of core confidence, which comprises hope, self-efficacy, optimism, and resilience. Stajkovic conceptualizes confidence as one's belief in their ability to handle job demands for any given domain of related activities.

4. Self-efficacy versus Self-concept

Self-efficacy comprises beliefs of personal capability to perform specific actions. Self-concept is measured more generally and includes the evaluation of such competence and the feelings of self-worth associated with the behaviors in question. In an academic situation, a student's confidence in their ability to write an essay is self-efficacy. Self-concept, on the other hand, could be how a student's level of intelligence affects their beliefs regarding their worth as a person.

5. Self-efficacy as part of core self-evaluations

Timothy A. Judge *et al.* (2002) has argued that the concepts of locus of control, neuroticism, generalized self-efficacy (which differs from Bandura's theory of self-efficacy) and self-esteem are so strongly correlated and exhibit such a high degree of theoretical overlap that they are actually aspects of the same higher order construct, which he calls core self-evaluations.

Therefore could summarize that self-efficacy refer to belief was differ from efficacy, self-esteem, confidence, self-concept, and self-evaluations.

2.7.5 Albert Bandura who are owner of Self-efficacy Theory

Albert Bandura was born December 4, 1925) is a psychologist who is the David Starr Jordan Professor Emeritus of Social Science in Psychology at Stanford University.

Bandura has been responsible for contributions to the field of education and to several fields of psychology, including social cognitive theory, therapy, and personality psychology, and was also of influence in the transition

between behaviorism and cognitive psychology. He is known as the originator of social learning theory (renamed the social cognitive theory) and the theoretical construct of self-efficacy, and is also responsible for the influential 1961 Bobo doll experiment. This Bobo doll experiment demonstrated the concept of observational learning.

Social cognitive theory is how people learn through observing others. An example of social cognitive theory would be the students imitating the teacher. Self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations." To paraphrase, self-efficacy is believing in yourself to take action. The Bobo Doll Experiment was how Albert Bandura studied aggression and non-aggression in children.

A 2002 survey ranked Bandura as the fourth most-frequently cited psychologist of all time, behind B. F. Skinner, Sigmund Freud, and Jean Piaget, and as the most cited living one. Bandura is widely described as the greatest living psychologist, and as one of the most influential psychologists of all time.

In 1974 Bandura was elected to be the Eighty-Second President of the American Psychological Association (APA). He was one of the youngest president-elects in the history of the APA at the age of 48. Bandura served as a member of the APA Board of Scientific Affairs from 1968 to 1970 and is well known as a member of the editorial board of nine psychology journals including the *Journal of Personality and Social Psychology* from 1963 to 1972. At the age of 82, Bandura was awarded the Grawemeyer Award for psychology.

Therefore could summarize that Albert Bandura who are owner of Self-efficacy Theory was born December 4, 1925, contributions to the field of education and psychology, is well known as a member of the editorial board of nine psychology journals including the *Journal of Personality and Social Psychology* . At the age of 82, Bandura was awarded the Grawemeyer Award for psychology.

Therefore could summarize that has had considerable influence on research, education, and clinical practice including behaviors especially to apply for study in road safety among senior people is this research.

2.7.6 Judgments of self-efficacy are generally measured along three basic scales:

1. **Self-efficacy magnitude** measures the difficulty level (e.g. easy, moderate, and hard) an individual feels is required to perform a certain task (Van der Bijl & Shortridge-Baggett, 2002). How difficult is my class work? Are the quizzes easy or hard?

2. **Self-efficacy strength** refers to the amount of conviction an individual has about performing successfully at diverse levels of difficulty (Van der Bijl & Shortridge-Baggett, 2002). How confident am I that I can excel at my work tasks? How sure am I that I can climb the ladder of success?
3. **Generality of self-efficacy** refers to the "degree to which the expectation is generalized across situations (Lunenburg, 2011). How sure am I that what I have learned will apply to my new tasks?

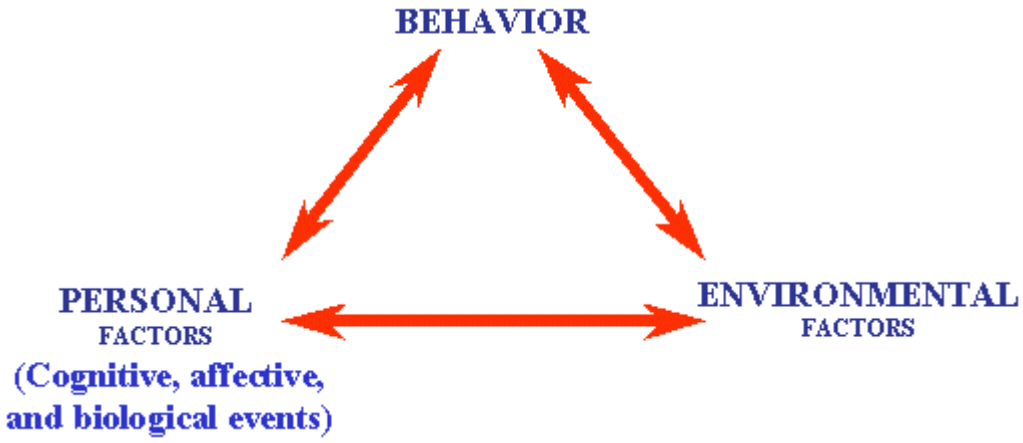
The basic idea behind the Self-Efficacy Theory is that performance and motivation are in part determined by how effective people believe they can be (Bandura, 1982; as cited in Redmond, 2010). The theory is clearly illustrated in the following quote by Mahatma Gandhi:
"If I have the belief that I can do it, I shall surely acquire the capacity to do it even if I may not have it at the beginning" - Mahatma Gandhi

Therefore could summarize that Judgments of self-efficacy are generally measured along three basic scales: magnitude, strength, and generality.

2.7.7 Social Cognitive Theory and Self-Efficacy.

Albert Bandura's Social Cognitive Theory emphasizes how cognitive, behavioral, personal, and environmental factors interact to determine motivation and behavior (Crothers, Hughes, & Morine, 2008). According to Bandura, human functioning is the result of the interaction among all three of these factors (Crothers et al., 2008), as embodied in his Triadic Reciprocal Determinism model (Wood & Bandura, 1989). While it may seem that one factor is the majority, or lead reason, there are numerous factors that play a role in human behavior. Furthermore, the influencing factors are not of equal strength, nor do they all occur concurrently (Wood & Bandura, 1989). For example, employee performances (behavioral factors) are influenced by how the workers themselves are affected (cognitive factors) by organizational strategies (environmental factors). The figure below illustrates Triadic Reciprocal Determinism as portrayed by Wood and Bandura (1989).

Figure 20 Triadic Reciprocal Determinism as portrayed by Wood and Bandura (1989).



Therefore could summarize that Social Cognitive Theory emphasizes how cognitive, behavioral, personal, and environmental factors interact to determine motivation and behavior.

2.7.8 The key concepts of self-efficacy.

The theory of self-efficacy is based on social cognitive theory (Bandura, 1997), which is frequently used to predict and explain changes in behavior using the key concepts of self-efficacy expectations, outcome expectations, and person characteristics. Self-efficacy expectations are the person's belief in his or her self-confidence to carry out a specific behavior. Outcome expectations are the beliefs that carrying out a specific behavior will lead to a given outcome. Both types of efficacy expectations play a role in the adoption and maintenance of specific behaviors, with efficacy expectations explaining the majority of the variance in behavior change (Bandura, 1977).

Self-efficacy theory proposes that efficacy expectations are central determinants of behavior, but it has argued that expectancies concerning outcome may be more important, or that the two may combine linearly or multiplicatively to determine behavior.

Therefore could summarize that The key concepts of self-efficacy were Self-efficacy and expectancies outcome to determine behavior.

2.7.9 Self-Efficacy theory and applying.

Self-efficacy refers to an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977, 1986, 1997). Self-efficacy reflects confidence in the ability to exert

control over one's own motivation, behavior, and social environment. These cognitive self-evaluations influence all manner of human experience, including the goals for which people strive, the amount of energy expended toward goal achievement, and likelihood of attaining particular levels of behavioral performance. Unlike traditional psychological constructs, self-efficacy beliefs are hypothesized to vary depending on the domain of functioning and circumstances surrounding the occurrence of behavior.

Self-Efficacy Theory (SET) has had considerable influence on research, education, and clinical practice. In the field of health psychology, for example, the construct of self-efficacy has been applied to behaviors as diverse as: Self-management of chronic disease smoking cessation, alcohol use, eating, pain control, exercise, HIV and this research would like to apply for study in road safety among senior people.

2.8 Previous Study

Daniel J. Foley, Harley K. Heimovitz, Jack M. Guralnik and Dwight B. Brock.(2002). Driving Life Expectation of Persons Aged 70 Year and Older In the United States. *The objectives.* 0f this study estimated total life expectancy and driving life expectancy of US drivers aged 70 years and older. *Methods.* Life table methods were applied to 4,699 elderly persons who were driving in 1993 and reassessed in a 1995 survey. The *results showed that* drivers aged 70 to 74 years had a driving life expectancy of approximately 11 years. A higher risk of mortality among men as a cause of driving cessation offset a higher risk of driving cessation not related to mortality among women that resulted in similar driving life expectancies. Nationwide, many elderly drivers quit driving each year and must seek alternative sources of transportation. Because of differences in life expectancy, women require more years of support for transportation, on average, than men after age 70.

Jim Langford; Sjaanie Koppel; Jude Charlton; Brain Fildes; Stuart Newstead.(2006) Study A Re – Assessment Of Older Drivers As A Road Safety Risk. Older drivers are frequently viewed as overly represented in crashes, particularly when crash involvement per distance travelled is considered. This perception has led to a call for tighter licensing conditions for older drivers, a policy which inevitably results in mobility restrictions for at least some drivers. However there is a growing body of research evidence which shows that as a group, older drivers represent no greater road risk than drivers from other age groups once different levels of driving activity are taken into account. This paper has examined aspects of older drivers' fitness to drive based on survey data and off-road and on-road driving performance from a sample of 905 New Zealand older drivers. The results show that policies which

target all older drivers and lead to licensing and mobility restrictions cannot be justified from a safety basis.

The sample of New Zealand older drivers showed strong evidence that drivers who travelled low mileages were liable to have more crashes per distance driven than drivers with higher mileages. Older drivers travelling 20km or less per week had around ten times the per-distance crash rate of drivers travelling 200km or more per week. The analyses presented in this paper also showed that low mileage drivers were more likely to report a re-duction in their driving performance and to report a range of health and medical conditions. Further, they also per-formed less well on two of the three off-road fitness to drive screening tests and the NZDORT on-road driving test (an external measure of driving skills). Reduced fitness to drive is likely to be but one factor in explaining the elevated crash rates for the lowest mileage drivers. However the findings presented in this paper are valuable in further refining our understanding of the so-called older driver problem - particularly through identifying a small, more precisely defined target group for road safety countermeasures, while excluding most older drivers from any special safety scrutiny.

Naohisa Hashimoto, Shin Kato, Sadayuki Tsugawa, (2009). Study A Cooperative Assistance System Between Vehicle For Elderly Drivers **.** Proposes a new concept of elderly driver assistance systems, which performs the assistance by cooperative driving between two vehicles, and describes some experiments with elderly drivers. The assistance consists of one vehicle driven by an el-derly driver called a guest vehicle and the other driven by a assisting driver called a host vehicle, and the host vehicle assists or es-corts the guest vehicle through the inter-vehicle communications. The functions of the systems installed on a single-seat electric vehicle are highly evaluated by subjects of elderly drivers in virtual streets on a test track.

Charles B. A. Musselwhite and Hebba Haddad.(2010). Study exploring older drivers' perceptions of driving. This research uses grounded theory to assess the driving needs of 29 older car drivers using four data collection techniques (two waves of focus groups, an interview and a driver diary). Findings suggest that older drivers view themselves as having better driving skills and attitude towards driving compared to when they were younger and compared to other drivers. In addition, they have a good ability to adapt to their changing physiology. Nevertheless, they report difficulty in assessing their own driving ability and cite they would like help to increase self-awareness about the driving task. In addition, the participants report having increasing difficulty in not having enough time to read, compute and comprehend road signs, maintaining a constant speed at the speed-limit, increased tiredness and fatigue and increased sensitivity to glare. The findings suggest given an iterative, qualitative methodology where driving issues are focused upon, older drivers

can become more self-aware of their driving limitations and discuss these aspects in the context of ageing physiology. Overall, it can be seen that the participants viewed themselves as having better driving skills than when they were younger and indeed than many other road users. Despite this, they are aware of a number of failings in their ability, but feel in most cases they are able to overcome and compensate for such behaviours, either through changing driver behaviour (driving slower with increased gaps, for example) or changing their travel behaviour (not going out at night to avoid glare and luminance issues, not driving in the busiest times to avoid distraction and being over-whelmed by the environment). However, it must be noted that in an ever growing car dependent society, a question for policy makers must be to consider whether older people be able to avoid such situations in the future and the potential consequences this has on road user safety coupled with a growing older person population. Further research is suggested to establish the certainness of these issues, through a larger more representative sample using robust and statistical techniques. The sample is small and somewhat biased towards older people who are able to travel and a key limitation of the research is that hard to reach individuals who may find driving so difficult that they are unable to drive very far and very often are not included in the sample. Nevertheless, this research has the potential to be a useful anchor for future studies that may focus on (older) driver needs. Focusing on older drivers needs and understanding how they might be met could enable older people to continue driving for longer, whilst retaining confidence in their ability, and ensure that they are safer drivers. In addition, the methodology has provided an opportunity for older people to get involved in research in a thoroughly participatory manner which has ensured that they feel able to shape the research and maximise benefits of the research outcomes for themselves and their age groups.

Jean M. Gaines ' , Kasey L. Burke , Katherine A. Marx , Mary Wagner , John M. Parrish Enhancing older driver safety: (2011): Study a driving survey and evaluation of the CarFit program. The objective of this study : To evaluate CarFit, an educational program designed to promote optimal alignment of driver with vehicle. Methods: A driving activity survey was sent to 727 randomly selected participants living in retirement communities. Drivers (n = 195) were assigned randomly to CarFit intervention (n= 83, M age = 78.1) or Comparison (n = 112, M age = 79.6) groups. After 6 months, participants completed a post-test of driving activity and CarFit recommendations. Results: Nonconsenting drivers were older and participated in fewer driving activ-ities. CarFit participation was moderate (71%) with 86% of the participants receiving recommendations. 60% fol-lowed the recommendations at the 6-month re-evaluation). The CarFit (67.6%) and Comparison (59.3%) groups reported at least one type of self-regulation of driving activity at baseline. There was no significant change in the driving behaviors at the six-month follow-up. Conclusion: CarFit was able to detect addressable opportunities that may

contribute to the safety of older drivers. Impact on industry: CarFit recommendations may need stronger reinforcement in order to be enacted by a participant.

Jim Langford, Judith L. Charlton , Sjaan Koppel , Anita Myers , Holly Tuokko , Shawn Marshall , , Malcolm Man-Son-Hing , Peteris Darzins , Marilyn Di Stefano , Wendy Macdonald (2013) .Study Findings from the Candrive/Ozcandrive study: Low mileage older drivers, crash risk and reduced fitness to drive.

Previous research has found that only older drivers with low annual driving mileages had a heightened crash risk relative to other age groups. These drivers tend to drive mainly in urban areas, where the prevalence of complex traffic situations increases crash risk. However it might also be that some drivers may have reduced their driving due to perceived or actual declines in driving fitness.

This paper uses Canadian and Australian data from the Candrive/Ozcandrive older driver study to investigate the association between annual driving distances and a set of driving-related factors, including fitness to drive.

All drivers in the Candrive/Ozcandrive older driver cohort study were allocated to one of three groups according to their self-reported annual driving distances: <5,001 km; >5,000 and <15,000 km; and 15,000 km or greater. Relationships between these driving-distance categories and: (a) self-reported crash data; (b) various Year 1 ‘fitness to drive’ performance measures; and (c) self-perceptions of driving ability and of comfort while driving, were determined.

Results confirmed the previously reported association between low mileage and heightened crash risk. Further, low mileage drivers performed relatively poorly on a wide range of performance measures, perceived their own driving ability as lower, and reported lower comfort levels when driving in challenging situations, compared to the higher mileage drivers. In most instances, these differences were statistically significant.

The paper provides further evidence that the so-called ‘older driver problem’ is most pertinent to low mileage drivers, and that this is due in part to low mileage drivers tending to have reduced fitness to drive. This higher risk group represented a fairly small proportion of the sample in this study.

The research has added to the growing body of research which suggests that the so-called ‘older driver problem’ is most pertinent to a small sub-group of

low mileage drivers with reduced fitness to drive. For this sample, the low mileage group represented 15 percent of the total sample.

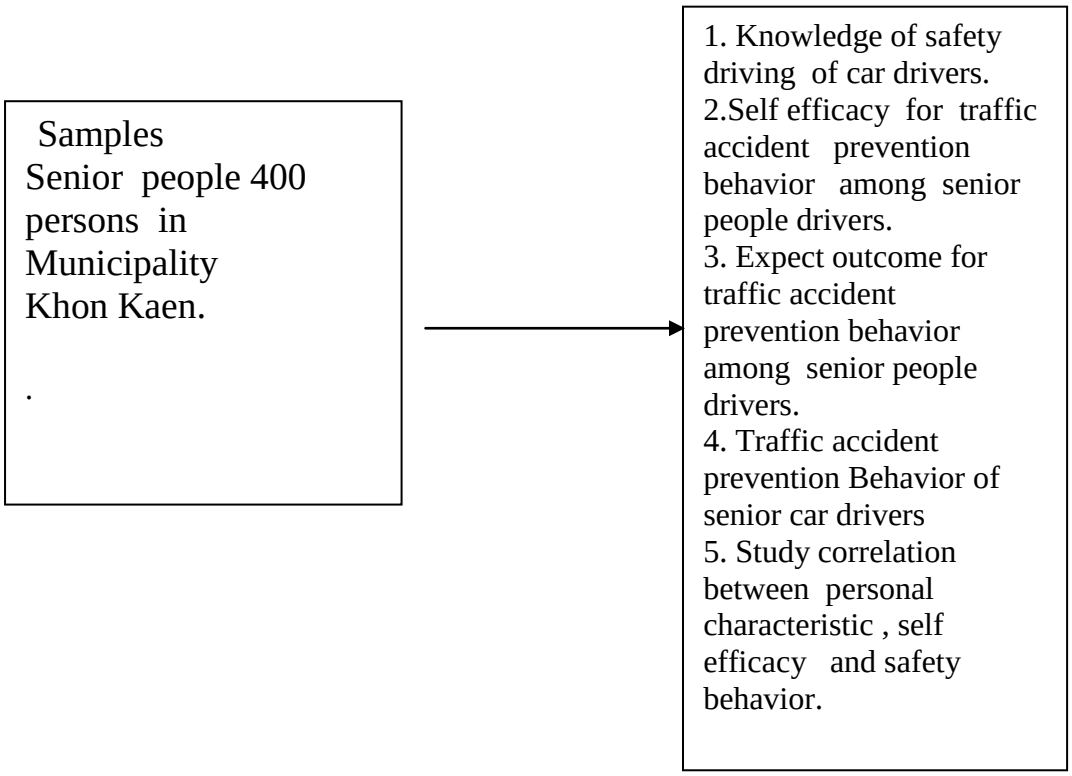
Esko Keskinen. (2014).Study education for older drivers in the future. Five presumptions have to be considered when addressing future education for older drivers: 1. Driving a car will continue to be one element of mobility in the future; 2. Older people want to be able to keep driving; 3. Safety will be an even more important factor in mobility in the future; 4. Ecological values will be more important in the future; and 5. Innovative technological applications will be more important in the future. Hierarchical models of driving are suitable in increasing understanding of older drivers' needs and abilities. The highest levels of the driving hierarchy in the Goals for Driver Education (GDE) model are especially important for the safety of both young and elderly drivers. In these highest levels goals for life, skills for living, and social environment affect everyday decision making in general but also driving, which has an impact on driver safety. Giving up driving is very much a social decision and should be taken as such. However, the highest levels of the driving hierarchy are by nature in-accessible to teacher-centered instruction These levels require more coaching-like education methods where the learner takes the central role and the teacher helps the drivers understand their own abilities and limitations in traffic. Testing and selecting older drivers to enhance safety is not, according to research findings, working in a proper way. Older drivers do not so much need more information concerning traffic rules, etc., but rather better understanding of themselves, their health restrictions, their skills, and their abilities to ensure daily mobility. Their closest companions also need tools to help them in discussions of traffic safety issues affecting older drivers. The aim in education for older drivers could perhaps be simplified by saying that it should not be teaching knowledge or skills and teachers should not simply give information to older people. It could be more of a process in mutual understanding where the teacher helps the older driver learn more about his or her own abilities and challenges in driving. It could also help older drivers solve their mobility problems in a safe and ecological way

Yasushi Nishida (2015).Analyzing accidents and developing elderly driver-targeted measures based on accident and violation records. This study performed a variety of analyses using the Institute for Traffic Accident Research and Data Analysis' Integrated Driver Database with traffic accident and violation records. The database integrates driver management data and road traffic accident statistics data, making it possible to explore the relationships among driver attributes and road traffic accident characteristics in considerable detail.

By controlling the compilation conditions and refining the sets of driver attributes, The analysis showed that drivers who experience accidents drive more carefully immediately after an accident, revealed high accident rates among drivers who have experienced certain violations, and produced other findings that could constitute a foundation for developing individual driver-targeted measures. Our analysis of large age groups, meanwhile, showed that drivers with a history of numerous accidents or apprehensions/violations are more likely to cause accidents.

The Integrated Driver Database with traffic accident and violation records boasts an expansive scope, covering all of the 81 million licensed drivers in Japan, and features 200 variables pertaining to driver attributes, accidents, and violations. In addition to letting users refine their focuses by driver age, sex, and place of residence, the database also enables analyses that account for lifestyle-related variables like when drivers received their licenses and whether drivers have moved to new addresses. The sheer diversity of driver attributes in the database makes it a promising resource for formulating driver-targeted measures.

2.9 Conceptual Framework



CHAPTER 3 RESEARCH METHODOLOGY

This descriptive research, research design was mix method both qualitative and quantitative data.
Population and samples 1.) 400 general old age people in 1 province, in the Northeastern Thailand study in municipality Khon Kaen,Thailand.

This chapter contains following detailed topics.
3.1 Research design

3,2 Population and sample

3.3 Research Procedure

3.4 Research Tools

3.5 Data analysis

3.6 Research Useful.

3.7 Expect Outcome

3.1 Research Design : This is descriptive research , mix method design study both Qualitative and Quantitative data.
There are 6 steps of study

1.Select 1 province in the northeastern of Thailand and then purposive sampling is Municipality Muang, Khon Kaen, Thailand.
2. Approach to senior Center in Municipallity, Khon kaen namely
1. Srichan temple senior center which most senior people is retirement senior people from official government
2.Nongwang Temple.. which cooperation among Nongwang temple, municipality, and Khon kaen hospital work together call Happiness increasing Center.

3. Senior Club in Regional Health Promotion Center 7 Khon Kaen 7, this place there are established for senior people around hospital come to join exercise and physical check examination.
4. Khon kaen Social welfare Development Center for senior Persons
5. Khon kaen Club in khon kaen hospital.

3. Approach to senior people in community and senior center both female and male by accidental technique who still driving.

4.Research tools conduction for data collection both for qualitative and quantitative data for drivers.
5. Data collection both qualitative and quantitative data by interviewing .
6.Data analysis for comparison between female and male senior drivers.
7. Summarize and full paper complete including publication.

3.2 Population and samples Old age people who were more than 65 year old. **Limitation**: Study 1 province namely Khon Kaen Provinces, in the Northeast of Thailand. Total of general old age people person 400 person. Both male and female who still driving.
Sample size calculation for unknown population

$$n = \frac{(P)(1-P)\ Z^2}{e^2}$$

n = Sample size,
p = proportion of population = 0.5
Z = standard score 95% =1.96
e = error 50%=0.05
n = 385. : (adjust = 400)
(Taro Yamane,1967)

3.3 Research Procedure.

Descriptive research study both quantitative data and qualitative data.

Quantitative data.

Quantitative data collected by using questionnaire which conducted by researchers and interview from senior people who still driving.

Qualitative data.
Qualitative data collected by using In-depth interview, take picture

3.4 Research Tools

The research tools were two questionnaires for quantitative data and guideline interview for In-depth interview Including camera for taking photo in real situation.

3.4.1 Questionnaires for data collection , There are 7 parts compost of Self Efficacy Application for Traffic Accident Prevention among Senior People Drivers in Municipality , Khon Kaen, Thailand.

Part 1 Characteristic questionnaire
Part 2 Questionnaire of knowledge for car safety driving among senior people.
Part 3 Questionnaire for Self efficacy for car driving among elderly people. There are 4 choices such as

Regular 4 mean high of Self efficacy
Often 3 mean Moderate of Self efficacy
Sometime 2 mean low of Self efficacy
No = 1 mean least of Self efficacy

Part 4 Questionnaire for expect outcome for car driving among elderly people.

1 = strongly do not expect outcome
2 = sometime expect outcome
3 = moderate expect outcome
4 = often expect outcome
5 = strongly expect outcome

Part 5 Questionnaire for practice of car driving among elderly people.

1 = strongly do not practice
2 = sometime practice
3 = moderate practice
4 = often practice
5 = strongly practice

Part 6 Suggestion for car driving among elderly people.

1 = strongly do not suggestion
2 = sometime suggestion
3 = moderate suggestion
4 = often suggestion
5 = strongly suggestion

Part 7 Other suggestion (open end)

3.5 Data analysis

Quantitative data.

Bring information to the correctness, put them into code and analyze with computer by using the statistical package SPSS program for descriptive statistic by using frequency distribution, percentage, mean standard deviation

Qualitative data.

Qualitative data using content analysis for categorizing and theme.

3.7 Study area

Study in municipality khon khan province , is one of the four major cities of Isan,or the Northeast of Thailand, also known as the "big four of Isan", the others being Udon Thani, Nakhon Ratchasima, and Ubon Ratchathani. It is the capital of Khon Kaen Province and the Mueang Khon Kaen District. Khon Kaen lies 450 kilometres (280 mi) north-northeast of Bangkok.

Khon Kaen is one of rural cities in northern region of Thailand. The city is bisected by Mithraphap Road, also known as "Friendship Highway", or "Highway 2", the road linking Bangkok to the Thai-Lao Friendship Bridge. A modern, multi-lane by-pass enables through-traffic to avoid the city centre to the west, and connects to the airport, the new main bus station (BKS3), and to the main roads to Kalasin and Maha Sarakham in the east, and Udon Thani in the north

CHAPTER 4 RESULTS

This descriptive research, research design was mix method both qualitative and quantitative data.
Population and samples 1.) 400 general old age people in 1 province, in the Northeastern Thailand study in municipality Khon Kaen,Thailand.
The results of this study were base on the response of 400 senior people, the result will be presented as follow.

1. Demography of characteristics of participants
2. knowledge of car safety driving among senior people
3. Self efficacy of car driving among elderly people
4. Self efficacy of car driving among elderly people each items.
5. Expect outcome of car driving among elderly people
6. Expect outcome of car driving among senior people.
7. Car driving behavior among elderly people
8. Correlation between characteristic variables and Safety behavior of car driver elderly
9. Correlation between variables and traffic safety behavior.
10. Qualitative data

The research results showed in detail as following.
1. Demography of characteristics of participants
Part 1 Query about personal information
From the self-efficacy questionnaire for the safe driving of the elderly It was found that the respondents were the most in the range of 60-69 years, 66.3 percent were male, 38.8 percent were female, 61.3 percent were female. Study at the upper secondary level / Vocational 29.5 percent, followed by undergraduate degrees, 22.8 percent, most of whom do not have congenital diseases, 69.5 percent, most respondents drive for more than 26 years, 46 percent, followed by 21-25 years, 17.5 percent. Most of the occupations were retired, 34.5 percent, such as government officials, public health ministries, followed by non-work, 25.8 percent, the average monthly income was mostly in the range of 0-5000 baht, 20.5 percent, followed by more than 50,000 baht. 17 percent, most respondents have a driver's license, 82.5 percent used to have an accident, 71.3 percent. Driving in the future, most respondents will drive indefinitely. 66.5%, followed by driving again within 5 years to quit, 13.3%, most of whom had never practiced safe driving, 68.8% and no need for safety driving, 73.8%, only 26.3% at Want driving for safety. Respondents had comments about the need for help. For safe driving, for example, should be able to clearly draw traffic lines. Providing knowledge about traffic rules Make

traffic signs clear and every point where there are accidents, often training for all types of motorists. Offer people to respect traffic rules And there are penalties, etc. and there are suggestions for road safety, for example, should consider how much different lights are appropriate And should add a signal light at the turn of the car to make it more visible than before Should use light reflecting light to see clearly. Various signs should be improved, such as telling the route As for the pleasure of driving at the Honda Center, Khon Kaen Respondents did not want 86.8 percent and wanted 13.3 percent.

Table 3 Demography of characteristics of senior people

Characteristic	Number (n=400)	Percent
Sex		
Male	155	38.8
Female	245	61.3
Age		
60 – 69	265	66.3
70 – 79	113	28.2
> 80	22	5.5
Marital status		
Single	28	7.0
Married	295	73.8
Divorce	69	17.3
Separate	8	2.0
Education		
No education	9	2.3
Primary school	41	10.3
Secondary school	40	10.0
High school	118	29.5
Diploma	73	18.3
Bachelor	91	22.8
More than bachelor	28	7.0
Disease		
No	185	46.3
Yes	215	53.8
Hypertension	122	30.5
Diabetes Mellitus	107	26.8
Heart	19	4.8

Characteristic	Number (n=400)	Percent
Asthma	12	3.0
Cancer	0	0
Thalassemia	0	0
etc	57	14.2
Duration of car driving		
Less than 5 years	15	3.8
6 -10 years	28	7.0
11 – 15 years	64	16.0
16 – 20 years	39	9.8
21 – 25 years	70	17.5
➢ 26 years	184	46.0
Occupation		
Unemployed	103	25.8
Agriculture	20	5.0
Merchant	55	13.8
Hired	27	6.8
Government/state enterprise	34	8.5
Retirement	138	34.5
etc	23	5.8
Income per month(baht)		
0 -50000	82	20.5
5001 – 10000	47	11.8
10001 – 15000	26	6.5
15001 – 20000	59	14.8
20001 – 25000	10	2.5
25001 -3,0000	33	8.3
30001 – 35000	3	0.8
35001 – 40000	28	7.0
40001 – 45000	0	0
45001 – 50000	44	11.0
➢ 50000	68	17.0
Driving License		
Yes	330	82.5
No	70	17.5
Ever traffic accident		
Yes	285	71.3

Characteristic	Number (n=400)	Percent
No	115	28.7
Duration of driving in the future		
No limitation	266	66.5
Within 1-3 years	52	1.30
Within 5 years	53	13.3
Within 10 years	26	6.5
Within 15 years	3	0.8
Experience of car driving practice		
Yes	125	31.3
No	275	68.8
Need car driving practice		
Yes	105	26.3
No	295	73.8

2. Knowledge of car safety driving among senior people

The core of knowledge of car safety driving among senior people were high level, most was the most suitable car use on the road was registered care and tax paid 97% and The able to stop car was parks in shopping malls, but the low score was how long that the driver must drive away from the vehicle in front was In the distance, are able to stop the vehicle by security when necessary 18.3%.

Table 4 Knowledge of car safety driving among senior people

No	**Knowledge of car safety driving among senior people**	**Number (400)**	Percent
1	While Elderly is driving, what document should be available with driving license ? **Correct Ans:** : A copy of vehicle registration certificate	245	61.3
2	What is the driver had no driving license punish ? **Correct Ans:** Imprisonment for not more than 1 month or a fine of up to 1,000 baht, or both.	170	42.5
3	What is the most suitable car use on the road?. **Correct Ans:** Registered care and tax paid	388	97.0

No	**Knowledge of car safety driving among senior people**	**Number (400)**	**Percent**
4	When see this sign, what the driver must practice?  **Correct Ans:** : Do not overtake other cars up front. In the sign installation	355	88.8
5	What is this traffic sign.?  **Correct Ans:** Prohibit all of car move inside this area.	141	35.3
6	What is this traffic sign.?  **Correct Ans:** No turn right and U turn	363	90.8
7	What is this traffic sign.?  **Correct Ans:** Do not park any car.	239	59.8
8.	What is this traffic sign.?  **Correct Ans:** Turn left	354	88.5
9.	What is this traffic sign.?  **Correct Ans:** Do not turn to the left	321	80.3

No	**Knowledge of car safety driving among senior people**	**Number (400)**	**Percent**
10	How to do when face this traffic sign?  **Correct Ans:** Prohibit all types of driving into the direction where the install badge	364	91.0
11	Driving safely and legally, What should be driving at a speed of not more than a few kilometers per hour? . **Correct Ans:** Less than 80 Km per hour	353	88.3
12	What is the driving license public must be qualified? **Correct Ans:** To know the roads and highways in the province of driving license reasonably.	320	80.0
13	What is punished if a man driving by expired driver's license ? **Correct Ans:** Fine < 2,000 baht	266	66.5
14	Driving through the junction, How to practice? **Correct Ans:** Follow the traffic lights or traffic rules strictly.	387	96.8
15	How to do when driver need to turn left and right? **Correct Ans** Slow down the car and opened fire before reaching the turn not less than 30 m.	299	74.8
16	When the car to be overtaking is right side, Which is in the case of any can overtake the left side.? **Correct Ans:** When the car was overtaking a right turn. Or signaling to turn right	359	89.8
17	What is the car in any way, not used? **Correct Ans:** The car has no stability	337	84.3
18	Driving through intersections, traffic signals, together with red flashing lights. What are riders must follow? **Correct Ans:** Stop the car behind the stop line when the safe and do not obstruct traffic so the	208	52.0

	next drive with carefully.		
No	**Knowledge of car safety driving among senior people**	**Number (400)**	**Percent**
19	Driving through intersections, traffic signals, together with yellow flashing lights. What are riders must to do? **Correct Ans:** Reduce speed and pass that way quickly and carefully.	**312**	**78.0**
20.	The gesture by the rider with arm right arm extended straight out of the body to shoulder level and waved up and down several times. What is meaning of driver?  **Correct Ans:** Reduce car speed	**300**	75.0
21.	How long that the driver must drive away from the vehicle in front? **Correct Ans: I**n the distance, are able to stop the vehicle by security when necessary.	73	18.3
22	If driver wants to turn left, how many meters before approaching a turn? **Correct Ans:** More than 30 Meters	126	31.5
23	Prohibit overtaking a car when driving up to the front of another car while there is fog, rain or smoke dust. couldn't see much in the way forward.? **Correct Ans:** 60 Meters	159	39.8
24.	When the driver found the mark "Turn left through" What driver should do? **Correct Ans:** Reduce the speed of the car down and turn left go through immediately.	138	34.5
25.	How to do if need change lane change lane or overtake a car ? **Correct Ans:** turn on light sign or sound	381	95.3
26.	Where able to stop car.? **Correct Ans:** Car parks in shopping malls	388	97.0
27.	How to do when driving across train railway and train is coming.? **Correct Ans:** Stop the car away from the railway,	358	89.5

	no less than 5 meters.		
No	**Knowledge of car safety driving among senior people**	**Number (400)**	**Percent**
28.	How to use signal hand for turn a car.? **Correct Ans:** Only right hand signals.	239	59.8
29.	How to do if driver need to U turn a car.? **Correct Ans:** See the traffic signs that allow a U-turn and into the correct lane.	345	86.3
30.	How to do, in case of slowly car?. **Correct Ans: Drive closely to left side**	377	94.3

Part 3 Self efficacy of car driving among elderly people

Most senior people perceived self efficacy of car driving among elderly people in high level **57.75 %,** Moderate 42.25%

Table 5 Self efficacy of car driving among elderly people each items

Self efficacy of car driving among elderly people	Number	Percent
Moderate (1.66-3.32 score)	169	42.25
High (> 3.33 score)	23	**57.75**

Part 4 Self efficacy of car driving among elderly people each items.

Most senior people perceived self efficacy of car driving among elderly people most in high level such as Preparing before driving such as sleeping., respect to traffic law, when driving, car driving regularly, no Alcohol drink before driving

Table 5 **Self efficacy of car driving among elderly people each items.**

No	Item	average	S.D	level
1	Car driving regularly	3.62	.58	High
2	Car checking before driving	3.38	.77	High
3	Preparing before driving such as sleeping.	3.65	0.56	High
4	Long experience for car driving.	3.44	0.78	High
5	Driving speed less than 80 km/hour	3.33	0.74	High
6	No Alcohol drink before driving	3.50	0.70	High
7	Driving speed more than 80 km/hour	2.96	0.77	High
8.	Respect to traffic law, when driving.	3.59	0.65	High

No	Item	average	S.D	level
9.	Cannot see when any car come in opposite way.	3.75	0.51	High
10.	Cannot see when any car come in opposite way.	3.33	0.83	High
11	Cannot hear when any car come follow or in opposite way.	3.37	0.86	High
12	Confident to safety driving.	3.46	0.75	High
13.	Senior people could drive car normally.	3.22	0.86	High
14.	Senior people could learn about traffic law.	3.48	0.71	High
15.	Senior people not necessary to learn safety driving anymore.	2.59	1.19	Medium
	Average	**3.38**	**0.34**	**High**

Part 5 **Expect outcome of car driving among elderly people**

Expect outcome of car driving among elderly people most was high level 71.50% follow by moderate level 27.75%

Table 6 Expect outcome of car driving among elderly people.

Expect outcome of car driving among elderly people	**Number**	**Percent**
Low	3	0.75
Moderate	111	27.75
High	286	71.50

Part 6 Expect outcome of car driving among senior people each item.

Expect outcome of car driving among senior people most were High level and subsequently medium. Especially they expect that senior people who could drive, make a convenient life, help their family, make a self reliance meanwhile the low score in medium level were senior people who could drive, make a risk of accident, and make a burden of policeman.

Table 7 Expect outcome of car driving among senior people each item.

No.	Items	Average	S.D	level
1.	Senior people who could drive, make a convenient life.	4.09	1.10	High
2.	Senior people who could drive, make a proud	3.87	1.24	High
3.	Senior people who could drive, help their family.	4.06	1.05	High
4.	Senior people who could drive, make a freedom in life.	3.94	1.11	High
5.	Senior people who could drive, make a job and income.	3.64	1.23	High
6.	Senior people who could drive, release stress.	3.73	1.28	High
7.	Senior people who could drive, make a traffic accident.	3.63	1.24	High
8.	Senior people who could drive, make a family increase worry.	3.92	1.24	High
9.	Senior people who could drive, make a self reliance.	4.06	1.12	High
10	Senior people who could drive, make a healthy guy.	3.85	1.20	High
11	Senior people who could drive, decrease dementia.	3.88	1.14	High
12	Senior people who could drive, make a risk of accident.	2.23	1.23	Medium
13	Senior people who could drive, make a burden of policeman.	2.57	1.23	Medium
14	Senior people who could drive, make a happy life.	3.96	1.17	High
15	Senior people who could drive, make a proud of life.	3.99	1.25	High
	Average	**3.69**	**.78**	**High**

6. **Car driving behavior among senior people**

Car driving among elderly people in overall most was high level subsequently was moderate level.

Table 9 Car driving behavior among senior people

Car driving among elderly people	Number	Percent
Moderate	17	4.25
High	383	95.75

7.Car driving behavior among elderly people.

Most senior people have a high level in all items. Most were Respect traffic law, use the break suitable, always focusing when driving for accident prevention, learning about safety driving and Never confuse for using between break and accelerator, .but low score of driving behavior was car checking before driving.

Table 10 Car driving behavior among elderly people.

No	**Item**	**Average**	**S.D**	**Level**
1.	Driving everyday in daily life.	4.12	1.14	High
2.	Respect traffic law	4.55	0.70	High
3.	No respect traffic law	4.22	1.12	High
4.	Car checking before driving	3.80	1.15	High
5.	Control yourselves driving less than 80 km/hour	4.09	1.02	High
6.	Always Focusing when driving for accident prevention.	4.54	0.70	High
7.	Use the break suitable.	4.57	0.66	High
8.	Never confuse for using between break and accelerator.	4.51	0.79	High
9.	Try to continue driving until can not.	4.43	0.83	High
10.	Learning about safety driving.	4.52	0.71	High
	Average	4.33	0.55	High

8.Correlation between characteristic variables and **Safety behavior** of car driver elderly

The characteristic variables correlation with **safety behavior** of car driver elderly are sex, education, duration of car driving, main occupation, Income/month, and car driving license.

Table 11.Correlation between characteristic variables and **Safety behavior** of car driver elderly

Variables	X^2	Sig.
Age	1.35	.850
Sex	13.88	<.001
Marital status	13.37	.038
Education	35.87	<.001
Disease	2.18	.337
Duration of car driving	61.49	<.001
Main occupation	34.00	<.001
Income/month	59.25	<.001
Car Driving License	12.57	.002

9.Correlation between variables and traffic safety behavior.

The result show that the variable correlation of traffic safety behavior were self-efficacy of driving elderly, and expect outcome of car driving elderly, including car driving behavior of elderly

Table 12 Correlation between variables and traffic safety behavior.

No	Variables	X^2	Sig.
1	Knowledge of car safety driving elderly	0 .93	0.063
2	Self-efficacy of driving elderly	8.71	0.003
3	Expect outcome of car driving elderly	17.81	<.001
4	Suggestion of car driving elderly	3.77	.152
5	Car driving behavior of elderly	13.88	<.001

10.Qualitative data

- Most of senior people need to continue car driving, because of feel freedom and high confident but more careless and more slowly driving.
- Some elderly quite drive a car but in urgently situation, they have to drive often by themselves because no helping from other to traveling.
- Most of senior people who have car accident experiences, stop driving but some only drive inside city near by home.
- Male prefer drive than female, on the other hand single senior people prefer to drive by themselves for working especially who still working although in the middle old people 70-80 years old.
- Female driver prefer to drive in urban area of province much more than other provinces.

- Male drivers still drive long distance 500-1,000 k.m but they need to take a rest after 200-300 km.
- Male 70 Years old “I still drive a car ordinary, just bought a new car last month
- Female 67 years old, food selling,
  I drive a car when necessary, because daughter and son prohibit in this year.
- Female 69 year old “I drive a car when no body help”
- Female 72,80 Years old “I still drive a car for working in the University.

Chapter V Conclusion and Recommendation

The descriptive research study mixed method both qualitative and quantitative data.
Data collection by using In-depth interview and focus group discussion as well as observation, take picture for qualitative and questionnaire data for quantitative

The results showed as following.

1. Demography of characteristics of participants

Part 1 Query about personal information

From the self-efficacy questionnaire for the safe driving of the elderly It was found that the respondents were the most in the range of 60-69 years, 66.3 percent were male, 38.8 percent were female, 61.3 percent were female. Study at the upper secondary level / Vocational 29.5 percent, followed by undergraduate degrees, 22.8 percent, most of whom do not have congenital diseases, 69.5 percent, most respondents drive for more than 26 years, 46 percent, followed by 21-25 years, 17.5 percent. Most of the occupations were retired, 34.5 percent, such as government officials, public health ministries, followed by non-work, 25.8 percent, the average monthly income was mostly in the range of 0-5000 baht, 20.5 percent, followed by more than 50,000 baht. 17 percent, most respondents have a driver's license, 82.5 percent used to have an accident, 71.3 percent. Driving in the future, most respondents will drive indefinitely. 66.5%, followed by driving again within 5 years to quit, 13.3%, most of whom had never practiced safe driving, 68.8% and no need for safety driving, 73.8%, only 26.3% at Want driving for safety. Respondents had comments about the need for help. For safe driving, for example, should be able to clearly draw traffic lines. Providing knowledge about traffic rules Make traffic signs clear and every point where there are accidents, often training for all types of motorists. Offer people to respect traffic rules And there are penalties, etc. and there are suggestions for road safety, for example, should consider how much different lights are appropriate And should add a signal light at the turn of the car to make it more visible than before Should use light reflecting light to see clearly. Various signs should be improved, such as telling the route As for the pleasure of driving at the Honda Center, Khon Kaen Respondents did not want 86.8 percent and wanted 13.3 percent.

2. The score of knowledge of car safety driving among senior people were high level, most was the most suitable car use on the road was registered care and tax paid 97% and The able to stop car was parks in shopping malls, but the low score was how long that the driver must drive away from the vehicle in front was **I**n the distance, are able to stop the vehicle by security when necessary 18.3%.

3. **Most senior people perceived self efficacy of car driving among elderly people in** high level **57.75 %,** Moderate 42.25%

4. **Most senior people perceived self efficacy of car driving among elderly people most in high level such as** Preparing before driving such as sleeping., respect to traffic law, when driving, car driving regularly, no Alcohol drink before driving

5.Expect outcome of car driving among elderly people most was high level 71.50% follow by moderate level 27.75%

6. Expect outcome of car driving among senior people most were High level and subsequently medium. Especially they expect that senior people who could drive, make a convenient life, help their family, make a self reliance meanwhile the low score in medium level were senior people who could drive, make a risk of accident, and make a burden of policeman.

7. Car driving among elderly people in overall most was high level subsequently was moderate level.

8. Most senior people have a high level in all items. Most were Respect traffic law, use the break suitable, always focusing when driving for accident prevention, learning about safety driving and Never confuse for using between break and accelerator, .but low score of driving behavior was car checking before driving.

9. The characteristic variables correlation with **safety behavior** of car driver elderly are sex, education, duration of car driving, main occupation, Income/month, and car driving license.

10. The variable correlation of traffic safety behavior were self-efficacy of driving elderly, and expect outcome of car driving elderly, including car driving behavior of elderly

11.Qualitative data.

1. Most of senior people need to continue car driving, because of feel freedom and high confident but more careless and more slowly driving.
2. Some elderly quite drive a car but in urgently situation, they have to drive often by themselves because no helping from other to traveling.
3. Most of senior people who have car accident experiences, stop driving but some only drive inside city near by home.

12.Recommendation

12.1 Recommendation for further research

1. Driving car make senior people freedom to go anywhere.
2. Increase concern for safety driving skill among senior people are very important.
3. People who have experience of car accident need to empowerment and support to continue driving.
4. Closely monitoring by daughter and son are need as well car check up.
5. Learning more road, map and car including environment before driving always.
6. Check up of medicine is important : eyes, ears, legs, hands

12.2 Recommendation for further research

1.Study the effectiveness of safety driving program among elderly people.
2. Create media for safety driving among elderly people .
3.Empowerment for safety driving among elderly people.

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Source :http://www.who.int/violence_injury_prevention/road_safety_status[9September2018]

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Questionnaires

Self Efficacy Application for Traffic Accident Prevention among Senior **People Drivers in Municipality , Khon Kaen, Thailand.**

Part 1 Characteristic questionnaire.

Information Please ✓ in ( ) or fill in bracket.

Name – Sure name ……

Address ..... Road ..... Muang district , Khon kaen Province, Thailand.

Date / Month/Year for answer questionnaire .....

1. Age ..... years (Full)
   1) ( ) 60-69 years
   2) ( ) 70-79 years
   3) ( ) > 80 years

2). Sex
   ( ) 1). Female
   ( ) 2) Male

3. Marital status
   ( ) 1. Single ( ) 2. Marry ( ) 3. Divorce ( ) 4. Separate

4. Education
   ( ) 1. No Education ( ) 2. Primary school
   ( ) 3.Junior High School ( ) 4. High School
   ( ) 5. Diploma ( ) 6. Bachelor degree
   ( ) 7. > Bachelor degree (ระบุ.....)

5. Disease (Diagnosis by Doctor)
   ( ) 1. Healthy
   ( ) 2. Sickness (Specifying more than 1 item)
      ( ) 1. Hypertension
      ( ) 2. Diabetes mellitus
      ( ) 3. Heart disease
      ( ) 4. Asthma
      ( ) 5. Cancer
      ( ) 6. Thalasemia
      ( ) 7. Other (.....)

6. Duration of car driving
   ( ) 1. Less than 5 years ( ) 2. 6-10 years ( ) 3. 11-15 years
   ( ) 4. 16-20 years ( ) 5. 21-25 years ( ) 6. 26 years

7. Main occupation
   ( ) 1. No work ( ) 2. Agriculture ( ) 3. Commerce

( ) 4. Hired ( ) 5. Government/
( ) 6. Retirement ……..……
( ) 7. Other (……..……)
8. Income / month ……..…… baht
9. car driving license ( ) 1. Have ( ) 2. No have
10. experience of car driving accident ( ) 1. No ( ) 2. Yes ……..……
11.Intention to drive a car
( ) 1. No limit ( ) 2. Within 1-3 years
( ) 3. 5 Within 5 years ( ) 4. Within 10 years
( ) 5. Within 15 years
12. Ever practice for safety driving
( ) 1. Yes ( ) 2. No
13. Need for safety driving practice (If researcher arrangement)
( ) 1. Need ( ) 2. No Need
14. Helping Need/support for safety driving
……
……
……
……
15. Suggestion for traffic safety ……
……
……
……

Part 2 Questionnaire of knowledge for car safety driving among senior people.

1. While Elderly is driving, what document should be available with driving license ?
A. Identification Card
B. House registration documents
C. A copy of vehicle registration certificate
D. The social security card.

2. What is the driver had no driving license punish ?
A. Imprisonment for not more than 1 year.
B.Imprisonment for not more than 1 month or a fine of up to 1,000 baht, or both.
C. A fine of up to 2,000 baht
D. A fine of up to 2,000 baht

3. What is the most suitable car use on the road?.
A. No light in the front of car.
B. A Sound more than 80 Decibell.
C. Dark Smoke 55 %
D.Registered care and tax paid

4. When see this sign, what the driver must practice?

A. Keep driving, overtaking cars. In this mark.
B. Give way to another vehicle ahead of the field with the marker.
C. To stop the car in the field with the mark.
D. Do not overtake other cars up front. In the sign installation.

5. What is this traffic sign.?

A. Let all of car move inside this area.
B. Prohibit all of car move inside this area.
C. Prohibit only car move inside this area.
D. Let stop and let passenger get off and get on car.

6. What is this traffic sign.?

A. No turn right and U turn
B. Turn left and U turn.
C. Turn right and U turn.
D. No turn left and U turn

7. What is this traffic sign.?

A. Do not turn left
B. Do not turn right.
C. Turn left
D. Turn right

8. What is signal traffic.?

A. Make a U-turn to the left
B. Make a U-turn to the right
C. Do not turn to the left
D. Do not turn to the right

9. How to do when face this traffic sign?

A. Prohibit all types of driving into the direction where the install badge.
B. Let people walk into the designated installed signage.
C. Only a personal car into the designated installed signage.
D. Let the car go in the field installed signage.

10. Driving safely and legally, What should be driving at a speed of not more than a few kilometers per hour?
A. Less than 50 Km per hour
B. Less than 80 Km per hour
C. Less than 100 Km per hour
D. Less than 120 Km per hour

11.What is the driving license public must be qualified?
A. To know the roads and highways in the province of driving license reasonably.
B. The age of 20 years old
C. Driving experience of at least 5 years ago.
D. Must have drivers license and motorcycle driver's license.

12. What is punished if a man driving by expired driver's license ?
A.Fine 1,000 baht
B. Imprisonment for not more than 1 month or a fine of up to 1,000 baht, or both.
C. Imprisonment for not more than 6 months or a fine of up to 1,000 baht, or both.
D. Fine > 2,000 baht

13. Driving through the junction, How to practice?

A. Follow the traffic lights or traffic rules strictly.

B. When found, the warning label on the intersection, driving at normal speed.

C. If there are no traffic lights, bigger cars through the intersection before the intersection.

ง. When the warning signal at the junction to drive normally.

14. How to do when driver need to turn left and right?

A. Slow down the car and opened fire before reaching the turn not less than 30 m.

B. Light on before 20 meters turn.

C. Stop car for preparing turning.

D. Speed before turn

15.When the car to be overtaking is right side, Which is in the case of any can overtake the left side.?

A. When the car was overtaking a right turn. Or signaling to turn right.

B. Overtaking another car in the left lane on the same channel.

C. Overtaking another vehicle on the right side of the car was overtaking.

D. Overtaking other vehicles on the left side of the car, while on the bridge.

16. What is the car in any way, not used?

A. The car has no stability

B. Car-mounted license plate of the official schedule.

C. A vehicle registered and pay taxes.

D. The cars, equipment, fittings, completely

17. Driving through intersections, traffic signals, together with red flashing lights. What are riders must follow?

A.Stop the car behind the stop line when the safe and do not obstruct traffic so the next drive with carefully.

B. Reduce the speed of the car and walking through it with caution.

C. Car stop carefully.

D. Increase the speed of driving and pass that way quickly .

18. Driving through intersections, traffic signals, together with yellow flashing lights. What are riders must to do?

A. Reduce speed and pass that way quickly and carefully.

B. Stop the car behind the stop line. When it is safe and does not interfere with the traffic so drive carefully.

C. Car park

D. Increase the speed of the car and through the bus lane as quickly as possible.

19. The gesture by the rider with arm right arm extended straight out of the body to shoulder level and waved up and down several times. What is meaning of driver?.

A. Stop car (short time stop).

B. Turn right

C. Reduce car speed.

D.Park car.

20. How long that the driver must drive away from the vehicle in front?

A. In the distance, are able to stop the vehicle by security when necessary.

B. More than 2 Meters

C. More than 1 Meters

D. More than 3 Meters

21. If driver wants to turn left, how many meters before approaching a turn?

A. More than 15 Meters

B. More than 20 Meters

C. More than 25 Meters

D. More than 30 Meters

22. Prohibit overtaking a car when driving up to the front of another car while there is fog, rain or smoke dust. couldn't see much in the way forward.

A.60 Meters

B.90 Meters

C.70 Meters

D.80 Meters

23. When the driver found the mark "Turn left through" What driver should do?

A. Reduce the speed of the car down and turn left go through immediately.

B. Stop waiting until to get green light and turn left

C. Stop waiting for the man across the street and a car comes from the right hand drive on first and then turn left to go.

D. Turn left and go through immediately

24. How to do if need change lane change lane or overtake a car ?

A. Immediately change lane.

B. Give light sign or sound.

C. Overtake the front brake immediately.

D. Rush machine overtake quickly.

25. Where able to stop car.?

A. With prohibition, stop the car sign.

B. In the tunnel

C. On the intersection

D. Car parks in shopping malls

26. How to do when driving across train railway and train is coming.

A. Stop the car away from the railway, no less than 5 meters.

B. Fast Driving

C. Sound silence and Fast Driving

D.Stop and waiting and emergency light signal.

27. How to use signal hand for turn a car.?

A. Make only Left hand Signals.

B. Make hand signals were both left hand and right hand.

C. Don’t use any hand signals.

D. Only right hand signals.

28.How to do if driver need to U turn a car.?

A. Any channel of road

B. See the traffic signs that allow a U-turn and into the correct channel

C. Access the channel with up arrow on the road to go straight.

D. U Turn at a diagonal yellow line

29. How to do, in case of slowly car?.

A. drive both right side and left side.

B. Drive close to right side

C. Drive at the side of the road.

D. Drive close to left side

Part 3 Questionnaire for Self efficacy for car driving among elderly people.
Information Please ✓ choose only one appropriate your idea.
Regular 4 mean high of Self efficacy
Often 3 mean Moderate of Self efficacy
Sometime 2 mean low of Self efficacy
No = 1 mean least of Self efficacy

No	Item	Level of Self efficacy				Researcher
		Regular	Often	sometime	No	
1	Car driving regularly					R1 [ ]
2	Car checking before driving					R2 [ ]
3	Preparing before driving such as sleeping.					R3 [ ]
4	Long experience for car driving.					R4 [ ]
5	Driving speed less than 80 km/hour					R5 [ ]
6	Alcohol drink before driving					R6 [ ]
7	Driving speed more than 80 km/hour					R7 [ ]
8	Seeing traffic sign clearly when driving.					R8 [ ]
9	Respect to traffic law, when driving.					R9 [ ]
10	Cannot see when any car come in opposite way.					R10 [ ]
11	Cannot hear when any car come follow or in opposite way.					R11[ ]
12	Confident to safety driving.					R12 [ ]
13	Senior people could drive car normally.					R13 [ ]
14	Senior people could learn about traffic law.					R14 [ ]
15	Senior people not necessary to learn safety driving anymore.					R15 [ ]

Part 4 Questionnaire for expect outcome for car driving among elderly people.

Information Please ✓ choose only one appropriate your idea

1 = strongly do not expect outcome
2 = sometime expect outcome
3 = moderate expect outcome
4 = often expect outcome
5 = strongly expect outcome

No	Item	Level of Expect outcome.					Researcher
		5	4	3	2	1	
1	Senior people who could drive, make a convenient life.						E1 [ ]
2	Senior people who could drive, make a proud						E2 [ ]
3	Senior people who could drive, help their family.						E3 [ ]
4	Senior people who could drive, make a freedom in life.						E4 [ ]
5	Senior people who could drive, make a job and income.						E5 [ ]
6	Senior people who could drive, release stress.						E6 [ ]
7	Senior people who could drive, make a traffic accident.						E7 [ ]
8	Senior people who could drive, make a family increase worry.						E8 [ ]
9	Senior people who could drive, make a self reliance.						E9 [ ]
10	Senior people who could drive, make a healthy guy.						E10 [ ]
11	Senior people who could drive, decrease dementia.						E11 [ ]
12	Senior people who could drive, make a risk of accident.						E12 [ ]
13	Senior people who could drive, make a burden of policeman.						E13 [ ]
14	Senior people who could drive, make a happy life.						E14 [ ]
15	Senior people who could drive, make a proud of life.						E11 [ ]

Part 5 Questionnaire for practice of car driving among elderly people.
Information Please ✓ choose only one appropriate your practice

1 = strongly do not practice
2 = sometime practice
3 = moderate practice
4 = often practice
5 = strongly practice

No	Item	Level of car driving practice					Researcher
		5	4	3	2	1	
1	Driving everyday in daily life.						P1 [ ]
2	Respect traffic law						P2 [ ]
3	No respect traffic law						P3 [ ]
4	Car checking before driving						P4 [ ]
5	Control yourselves driving less than 80 km/hour						P5 [ ]
6	Always Focusing when driving for accident prevention.						P6 [ ]
7	Use the break suitable.						P7 [ ]
8	Never confuse for using between break and accelerator.						P8 [ ]
9	Try to continue driving until can not.						P9 [ ]
10	Learning about safety driving.						P10 [ ]

Part 6 Suggestion for car driving among elderly people.
Information Please ✓ choose only one appropriate your suggestion.

1 = strongly do not suggestion
2 = sometime suggestion
3 = moderate suggestion
4 = often suggestion
5 = strongly suggestion

No	Item	Level of car driving suggestion					researcher
		5	4	3	2	1	
1	Elderly should have physical examination before get driving license						E1 [ ]
2	Illness elderly should stop car driving.						E2 [ ]
3	It should show a signal for elderly driving.						E3 [ ]
4	Elderly should normally driving.						E4 [ ]
5	It should show a signal for elderly driving.						E5 [ ]
6	Suggestion elderly has to physical examination before permeation of car license						E6 [ ]
7	Elderly should stop driving if distance > 300 km.						E7 [ ]
8	Elderly should practice for safety driving.						E8 [ ]
9	Elderly should drive only nearby home.						E9 [ ]
10	Elderly should not drive in night time.						E10 [ ]

Part 7 Other suggestion

.....
.....
.....
.....
.....
.....
.....

Thank you so much
(Associate Prof. Dr. Chulaporn Sota)

Guideline for data collection
By In depth interview and Group discussion

1. How long you driving experience?
2. What is your opinion about traffic accident problem now?
3. Do you have experience of crash.? And why? Who is wrong and right?
4. Do you need to continue driving?
5. What is the most important for safety driving?
6. How you driving prepare yourself for safety driving.?
7. What is useful of driving by yourself?
8. When you intention to stop driving? And why?
9. Do you plan to continue driving? And why? How to do?

Thank you so much
(Associate Prof. Dr. Chulaporn Sota)

PICTURES


Khon Kaen Provi
What makes Kho
Thailand
Bangkok
Cambodia
Pattaya City
Phnom Penh
Can Tho

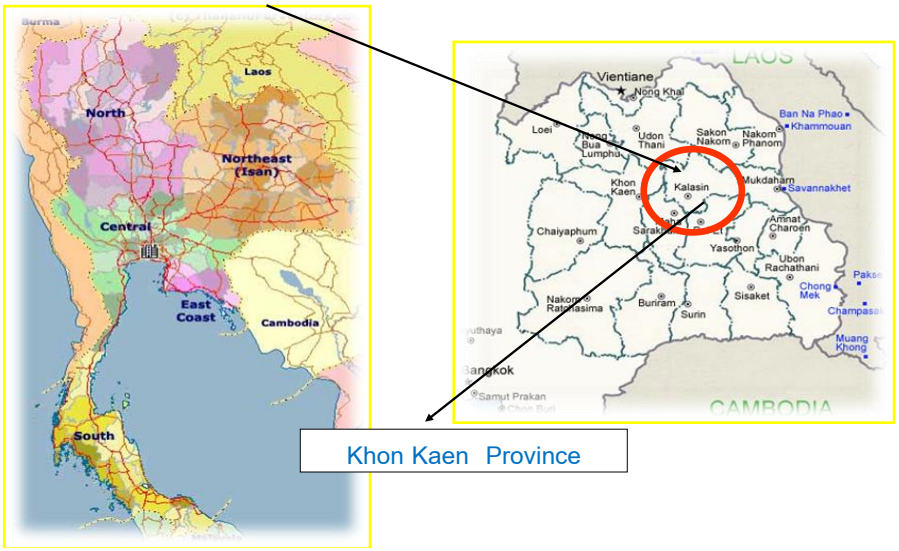

Nay Pyi Taw
Chiang Mai
LAOS
Vientiane
Yangon
Haikou
Gulf of Tonkin
Phuong Vinh Ninh
Da Nang
THAILAND
Khon Kaen
Nakhon Ratchasima
VIETNAM
Bangkok
Phuong Hai Cang
CAMBODIA
Phuong Loc Tho
Port Blair
Phnom Penh
Ho Chi Minh City
Andaman Sea
Gulf of Thailand
Surat Thani

What does Khon Kaen have?

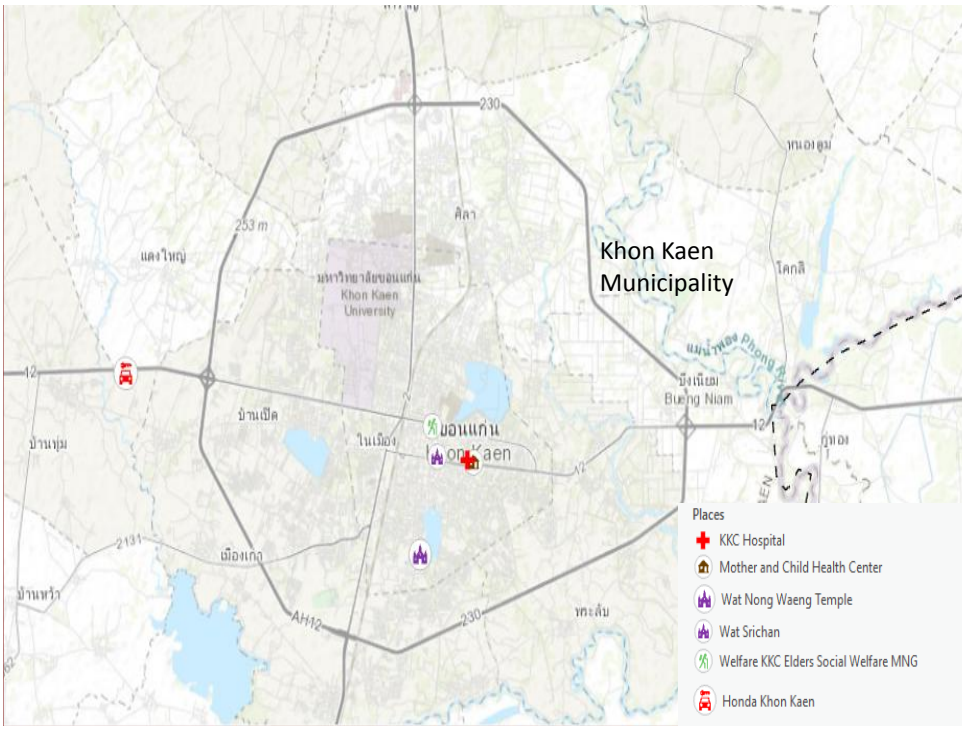




Map of Khon Kaen Province



This is map of Municipality, Khon kaen, Thailand.



Health Center (Maternal and Child Health Center)

Senior Center :Khon kaen Hospital

Nong Wang Temple (Happiness Center for Elderly)

Senior Center : Srichan Temple

Khon kaen Social welfare Development Center for Older Persons

Honda Company,Maliwan,Khonkaen.

Car driving training at Honda Company

Safety driver Training at Maliwan Honda Club, Khon kaen, Thailand.

Final Report

Research Grant 2018

ATRANS