Examining Attitudes Towards Safe Speed to Protect Pedestrians

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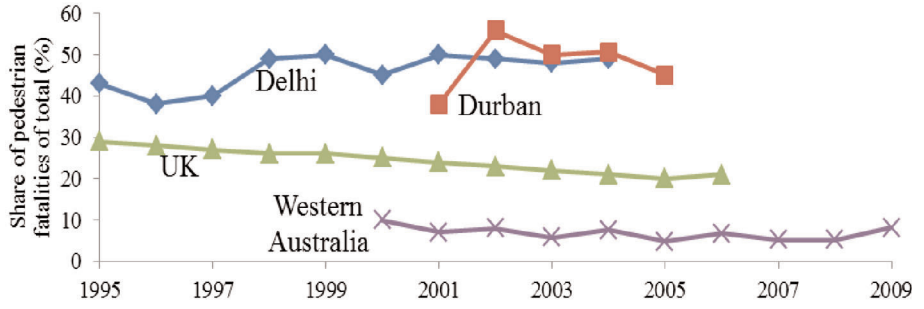
ABSTRACT

Share of night time pedestrian fatalities has been associated with human factors for many years. The focus of the present paper aims to examine the option of introducing 40km/h night zone speed limit. Particularly targeting the 60km/h limit roads to further protect pedestrians. Questionnaires of the study were distributed to a random sample of four groups. Australians (born in Australia) and three others, Australians born in different countries and belongs to Africa, Asia and Europe. The Questionnaires were related to preference of introducing 40km/h during the night (Night Zone) and also related to the delay concerns of introducing 40km/h during the day (Day Zone). The total number of participants in the study is 300 of the four groups. Each group has 75 participants. The study utilized age, gender and marital status as independent variables. Literature search has found different pedestrian fatality trends of the four cultural groups some are ascending and the others are descending. Therefore the study hypotheses that cultural groups living in Perth are different in terms of their attitudes towards the preference Night Zone and the delay concerns of the Day Zone. Acceptance of the Night Zone preference reached 64 % whereas; the mean rate responses reached 74 % for the Day Zone delay concerns. It was learned from results that attitudes differences existed between the cultural groups on both Night Zone and Day Zone options as hypothesised. Result showed that Asian group recorded the lowest rate for the Night Zone preference and cluster analysis depicted that clearly. There was statistically significant difference on drivers obeying the sign limit, between Asian and two groups namely African and Australian. Similarly cluster analysis performed for the Day Zone, indicated that European group was away from the rest of the clustered groups showing less concerns of implementing the Day Zone option on particular issue and that is, "European group do not believe that the delay is caused by the 40km/h speed limit but rather they believe it is due to the traffic signals". Australian group were the most concern about implementing the Day Zone

limit, as they recorded the highest mean rate response 77 %. There was statistically significant difference between singles and non-singles on the preference of Night Zone differences. A statistical difference was also found between male drivers who believe that 40km/h during the day is too slow compared to female drivers. The 18-29 years age group was the most concern about the Day Zone implementation compared to other age groups. Surprisingly, they also recorded the lowest mean response rate for the implementation of 40km/h Night Zone limit of all age groups. They reveal their attitudes against implementing of the 40km/h limit all together and preferring to leave the 60km/h speed limit unchanged. Details of Multivariate Analysis of Variance (MANOVA) are included throughout the analysis. Some analysis, results and conclusions of this paper are valuable and useful for practitioners for exposing the ideas of drivers. Knowing that the Arab Gulf Countries particularly the Kingdom of Saudi Arabia is a host to many expatriates who are road users (drivers or pedestrians) contributing to pedestrian fatalities.

1. INTRODUCTION

Night time pedestrian fatalities have been associated with human factors for many years. Many authorities have made a long stretch of successes in road safety, particularly in reducing pedestrian fatalities and clearly in developed countries i.e. USA, Europe and Australia. This issue is continuing to be of alarming concern for many Asian countries, India, Pakistan, many countries in Africa and the Middle East. One common cluster concern which is still persisting for most of the countries is night time pedestrian fatalities. There are 200,000 pedestrians killed at night each year worldwide, [1]. These types of accidents showed resilient to reduction [2] & [3]. A recent research on time of the day, reported that the first few hours of the night are when most pedestrian fatalities occur, [4]. A more specific literature search found that pedestrian fatalities vary from continent to the other and from country to the other. Figure 1 below shows four places each belongs to one of the four groups under study and are having different pedestrian share of fatality rate and trends.



Sources: [5], [6], [7] & [8]

Figure 1. Share of pedestrian fatalities of total

The current study sought to gain a greater and a wider understanding of attitudes of drivers from different background on certain variables mentioned below. The idea of the multicultural groups was to get more realistic random sample of the population as possible. Australia like other countries in the world is known to have a multicultural society and cultural group involvement in pedestrian accidents is inevitable, for instance [1] found that 42% of all traffic fatalities in Asia are pedestrians. Similarly [9] was reported that foreign-born are 36% of New York City's residents but comprising 51% of fatalities.

A comprehensive literature search also found that studies did not deal with or examined the possibility of introducing a night zone speed limit similar to the school zone speed limit, but dealt with other relevant issues to improve pedestrian safety e.g. on visual contrast, [10], biological motion [11] and manipulating traffic signals [12]. Many researchers around the world have emphasised on one common concern and that is to reduce the speed of the vehicle ([13]; [14] & [15]. Since speeding behaviour is widespread and perhaps socially acceptable, [16]. The current study therefore employed a self-report methodology to examine attitudes on 40km/h speed zones.

According to [17], there have been some safety concerns due to the increase in fatalities from 9 per cent in the years 2007 and 2008 years compared to 14 per cent in 2009. The most recent concern was reported by [18] due to the high number of fatalities in 2011 [18]. According to data collected from the Western Australia Police, it indicated that the percentage of night time to day time ratio of pedestrian fatalities has increased from - 9% in 2007 to 57% & 45% in 2008 & 2009 respectively. In endeavour to target speed reduction, Main Roads authority found one stretch of road that had higher pedestrian accidents than any other roads in the metropolitan area.

This road had a posted speed of 60 km/h limit and they decided a trial. They installed 40 km/h electronic speed signs along that road, see Figure 2 below.

Figure 2. Electronic 40 km/h signs at the same location at day and at night

The purpose was to introduce a variable speed zone by lowering travel speeds from 60 km/h to 40 km/h during peak periods of pedestrian activities. The initiative is a trial to improve safety for pedestrians and other road users The signs stayed displaying 40 km/h from 7.30 am till 10.00 pm (except Friday and Saturday they are extended till 1:00 am instead of 10:00 pm). The same signs will display 60 km/h outside the above

mentioned time. As enforcement began in this road and many others of 40km/h limits, concerns were raised due to the high number of speeding fines [17]. The most severe increase came in the number of speeding motorists in 40 km/h (non-school zone) areas where 96 drivers were caught daily in the 40 km/h zone compared to the 83 the previous year. If drivers' speeding behaviours continued to a similar level in that zone, it will have an increase by 4745 speeding fines annually.

It is paramount to select the appropriate speed limit to suit road user's behaviours. By understanding the causes of a maladaptive behaviour to speeding, it can help in the development of methods to select the most appropriate [19]. Concerns were also voiced by the RACWA (Royal Automobile Club of Western Australia) about such changes in the speed limit which may increase travel times and cause confusion when changing speed limits [20]. According to a recent survey by the TAC (Transport Accident Commission) in Victoria, Australia, it was reported that only 46 per cent of drivers believe that driving 50 km/h in a 40 km/h zone is unacceptable. Which means that there still appears to be some tolerance of low level speeding on speed limit such as the 40 km/hr. Despite all the TV advertisements and campaigns, the head of the community relation of the TAC said it was most concerning that little had changed in people's attitudes towards speeding from the previous year, [21].

In addition to the above, the study sought to examine the night zone option and to test the stress associated behaviours with the 40 km/h limit imposed during the day. There was a need to better understand the factors that contribute to driver attitudes and behaviour when the 40km/hr limit was imposed during the day (Day Zone) and during the night (Night Zone).

2. PARTICIPANTS

Submission and collection of questionnaire was administered in Perth to four groups of Australians from different cultural background and according to their country of birth i.e., Africa, Asia, Australia and the EU countries. Participants from Australia were born in Australia and others were added to one of the three cultural groups according to their birth place. For instance, participants from Africa were from South Africa, Zambia, Kenya and Egypt. Participants from Asia were from China, Singapore, Malaysia, Indonesia, Japan, India and Pakistan. Participants from EU countries were from England, Macedonia, Czech, and Holland. Respondents were also stratified according to gender, marital status and Age group (18-29, 30-44, 45+years) including their country of birth. Each cultural group had 75 participants. Singles were 153 (51%). Average age was 33, 27, 36 & 37 years for Africans, Asians, Australian and Europeans respectively.

Respondents were recruited through planned network from the research team. A slow process involved face to face contact to ensure exclusion or inclusion in the survey. Some participants who have not visited their country of origin in the last 5 years were excluded from the study. The most important criterion for inclusion in the study was that participants held a current Australian driver's licence. According to the Ethics Committee of Curtin University, all participants were to be provided with a consent form and information letter attached with the questionnaires.

3. APPROACH

A ten item questionnaire was used to collect demographic data. It used a range of items constructed specifically for this study and are used as dependent variables (items) were divided and targeted the two options. Firstly, the preference to implement the 40 km/h limit during the night (Night Zone). This is a 5 – item questionnaire with their abbreviation shown in Table 1 below. It relates to the acceptance of the idea, obeying the flashing sign, contributing to fewer fatalities, safety, adopted in other similar locations and finally it can be similar to School Zones in terms of safety. It is measured on a five-point Likert scale utilised (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). The study conducted a reliability test and found Cronbach's alpha to be acceptable 0.76.

Table 1. Items on preferring the use of 40km/h Night Zone

Item	Questionnaire	Abbreviated
1	Drivers are more likely to accept the idea of a 40 km/h Night Zone around entertainment venues.	Accept the idea
2	Driver are more likely to observe and obey flashing 40 km/h Night Zone signs.	Obey the sign limit
3	There may be less pedestrian fatalities if 40 km/h Night Zones are introduced around entertainment venues.	Less fatality expected
4	40 km/h Night Zone may need to be adopted other Weeknights for safety of pedestrians.	Adopt it other weeknights
5	Night zone is similar to the 40 km/h School Zone limit in terms safety for pedestrians.	Safe as School Zone

Secondly the delay concern if the 40km/h during the day (Day Zone) is implemented. This is a 5 – item questionnaire with their abbreviated terms shown in Table 2 below.

Table 2. Items on delay concerns on the use of 40km/h Day Zone

Item	Questionnaire	Abbreviated
1	Drivers may find a 40 km/h limit too slow during the day.	Too slow speed
2	Drivers may find it stressful to drive at 40 km/h limit during the day on roads not busy with pedestrians.	Stressful speed
3	Drivers may show less tolerance during the day if driving on roads with a 40 km/h limit.	Less tolerance
4	Drivers are likely think that a 40 km/hr limit during the day will slow the flow of traffic.	Slows traffic
5	Drivers may think that delays in the CBD are due to a 40 km/h limit during the day rather than the traffic signals.	Speed delays not signals

The approach used here has examined the vital variables dealing with delay issue in the 40 km/h during the day. The study explored five variables. It is based on two concepts the direct delays as in items 1, 5 and stressful effect on behaviour due to delays, as in items 2, 3 & 4. Cronbach's alpha is .76 which is considered important for the reliability of the analysis. Likert scale was utilised (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

4. STATISTICAL METHODS

The study adopted the 10 dependent variables discussed in Section 3 above. The study also included age, gender, and marital status as independent variables. For the purpose of this research study, Multivariate Analysis of Variance (MANOVA) was employed to search for difference amongst the dependent variables. This study is using 75 cases in each cell and according to [22], if any violations of normality do exist, it will not affect the robustness of the analysis as long as the cases in each cell exceed 20. Details are discussed in Section 5.1 for the Night Zone option and Section 5.2 for the Day Zone delay concerns. To further test the groups for differences, Cluster analyses were performed for the data in Section 5.1 and 5.2. It was appropriate to compare the data of these two sections separately. Section 5.3 was added for the purpose of investigating difference in age groups. Researchers utilized SPSS software to perform the statistical data analysis.

5. RESULTS

5.1 Night Zone option

Data analysis indicated that preference for the Night Zone option was 3.57 (64 %) for all groups. In order to examine responses, a between group MANOVA was perform to investigate group differences in response to the five dependent variables used as shown in Figure 3 below.

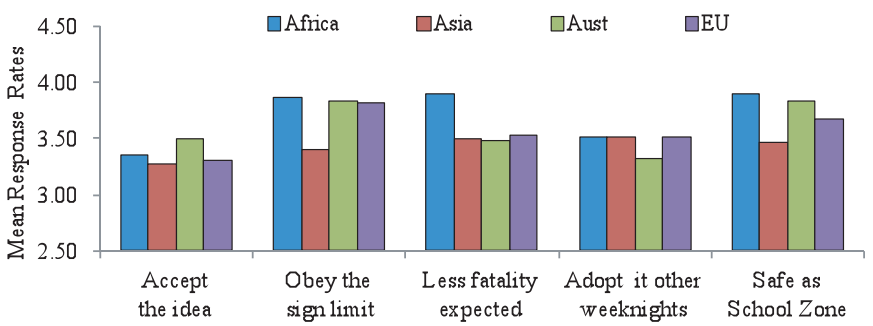


Figure 3. Examining five item variables for the preference of Night Zone option

Results indicate that there was statically significant difference between the groups on the combined dependent variables. F (15,882) = 3.32, p = .000, Wilks' Lambda = .85; partial eta square = .05. When the results were considerd seperately, the only items to

reach statistical differnce using Bonferroni adjusted alpha level of .010, were two items. "Obey the sign limit" and "Less fatality expected". In terms of "Obey the sign limit", an inspection of the mean response rates indicated that Africans reported higher mean respone rates on "Obey the sign limit" (*M*= 3.87, *SD* =.66) than Asians (*M*= 3.40, *SD* =1.08).

In terms of "Less fatality expected" item, African groups reported higher rate (*M*= 3.89, *SD* =.73) than other groups particularly Australian (*M*=3.48, *SD*=.92). Further analysis in Table 3 below shows details of significant differences found between groups on the two dependent variables mentioned above.

Table 3. Group differences for the preference of Night Zone limit

Variables	Between groups		Mean Response Rates		*SD*		*F(5,144)**	Partial Eta ^{2}
Obey the sign limit	Asians -	Africans	3.40	3.87	1.08	.66	10.19	06
	= -	Australians	=	3.84	=	.68	8.95	.06
Less fatality expected	African -	Asians	3.89	3.49	.73	96	8.23	.05
	= -	Australians	=	3.48	=	.92	9.31	.06
	=	Europeans	=	3.53	=	.83	8.00	.05

* P < .01

There was no significant difference found in gender (male vs. female) despite the slight higher mean response rates of males on Night Zone preference than females on all five variables. When examining marital status (single vs. Non-single) as an independent variable, on the preference of the Night Zone option, one way MANOVA using categorical independent variable was performed. Results revealed that there was a statically significant difference between the groups on the combined dependent variables. F (5, 194) = 3.47, p = .005, Wilks' Lambda = .82; partial eta square = .08. When the results of the dependent variables were considerd seperately, single and non single reached statistical differnce using Bonferroni adjusted alpha level of .01, and perticularly on two items. Firstly on accepting the idea of the Night Zone option and secondly on believing that the Night Zone option will be as safe as the School Zone. See Table 4 below.

Table 4. Marital Status differences for the preference of Night Zone limit

Variables	Between singles & Non-singles		Mean Response Rates		*SD*		*F(5,294)**	Partial Eta ^{2}
Accepting the idea	Singles	Non- Singles	3.03	3.69	1.11	.78	35.38	.11
Safe as School Zone	Singles	Non- Singles	3.46	3.98	.98	.61	29.34	.09

* P < .01

When average linkage between groups was performed, the Dendogram in Figure 4 depicted that the Asian group clearly separated from the rest of the clustered groups. They recorded the lowest mean response rates 3.43 of all groups showing least favor for the Night Zone preference. The second distanced group is the African group recorded the highest mean response rates of all cultural groups, preferring the Night Zone limit as an option. The Australian and the European groups are the closest indicating some similarity between their mean response rates.

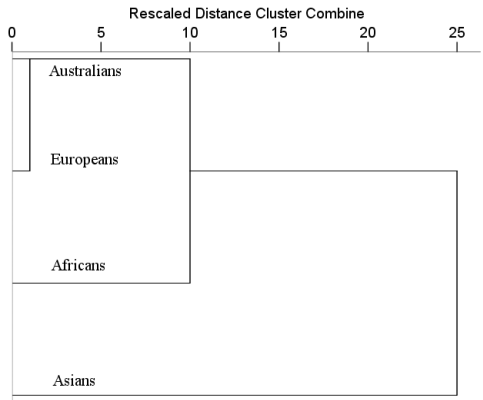


Figure 4. Dendogram depicts the Asian group away from the other three groups.

5.2 Day Zone Delay Concerns

The study found that the overall mean response rates for the delay concerns of the Day Zone were 3.97(74%). It is shown in Figure 5 that some of the differences of the mean responses rates on that concerned delay. This was further examined searching for significant differences of groups by performing MANOVA.

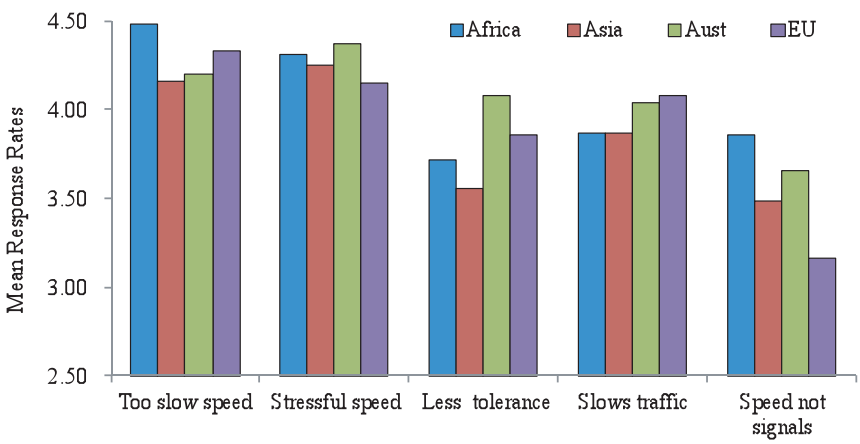


Figure 5. Examining group differences on Day Zone delay concerns

Results indicate that there was statically significant difference between the groups on the combined dependent variables. F (15,806) = 4.2, p = .000, Wilks' Lambda = .81; partial eta square = .07. When the results were considerd seperately, the only item to reach statistical differnce using Bonferroni adjusted alpha level of .010, was "Speed delays not signals", an inspection of the mean response rates indicated that European group recorderd the lowest mean response rate (M= 3.16, SD =.92) of all groups. It was statistically different and much lower than the African mean responsse rates (M= 3.87, SD =.87).

A one-way between –group MANOVA was also performed to investigate gender differences in the delay concerns of the Day Zone. There was a statically significant difference between the groups on the combined dependent variables. F (5, 294) = 7.42, p = .000, Wilks' Lambda = .89; partial eta square = .11. When the results of the dependent variables were considerd seperately, the only item to reach statistical differnce using Bonferroni adjusted alpha level of .01, was the "Too slow speed " item . That differnce had F (1,298) = 8.98, p=.003 and partial eta square =.03. An inspection of the mean response rates scores indicated that male drivers reported higher mean response rates (M= 4.43, SD =.72), compared with female drivers (M=4.16, SD =.82). There was no statistical difference found on marital status as an independent variable.

When average linkage between groups was performed, cluster analysis revealed that European group was clearly separated from the rest of the clustered groups, See Figure 6. Another separated cluster is the Australian group, as it can be seen from Figure 5, that the Australian group has had two highest mean response rates than other cultural groups. In the meantime the Dendogram in Figure 6 shows that the Australian group is in a common cluster with the Asians and the African groups.

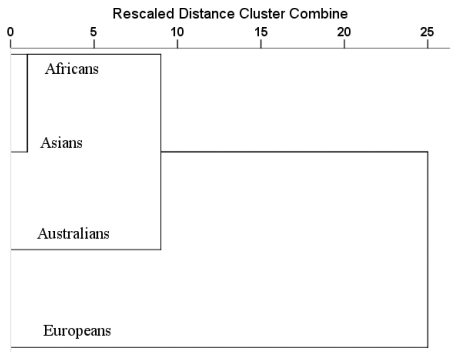


Figure 6. Dendogram depicts European group is separated from the other three group

5.3 Night Zone preference vs. Day Zone delay

The overall mean response rates and percentages of each cultural group are shown in Table 5 on the preference of 40km/h Night Zone option and on the delay concerns of the 40km/h Day Zone option. It can be seen from Table 4 that the overall mean response

rates of the 40km/h Night Zone preference is 3.57 (64%). This is compared to the 3.97(74%). of the delay concerns of the Day Zone option. This is indicating that the respondents are more in favor of implementing the 40km/h limit during the night rather than during the day.

Table 5. Group responses rates & percentages for the two zones

Group	Mean Night Zone Preference Rate	% Response Rate of the group	Mean Day Zone delay Rate	% Response Rate of the group
African	3.71	68	4.05	76
Asian	3.43	61	3.86	72
Australian	3.59	65	4.07	77
European	3.57	64	3.91	73
Mean	3.57	64	3.97	74

It can also be seen from Figure 7 that African and Australian groups are in less favor for the Day Zone option and the African group strongly in favor even more than the Australian for the Night Zone option. The Asian group had the lowest mean response rates of all cultural groups on both the Night Zone preference and Day Zone Delay. The European group mean response rates is also low and particularly lower than groups average on the delay concerns of the 40 km/h Day Zone delay limit.

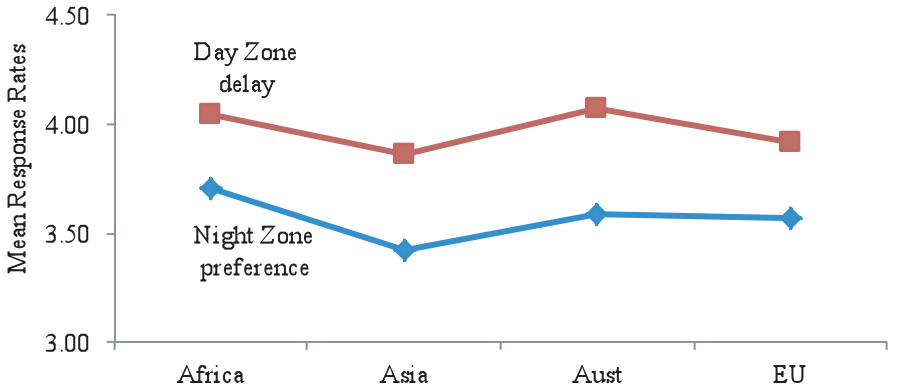


Figure 7. Trends from responses of the two zones by multicultural groups.

The attitudes of the age groups on the preference of the Night Zone preference vs. delay concerns of the Day Zone showed that the younger group (18-29) years was less favorable for the Night Zone option and reported strong rejection of the Day zone option. See Figure 8 below. Other important thing to be learned from Figure 8 is that the older the age group, the higher the acceptance of the 40km/h Night Zone option.

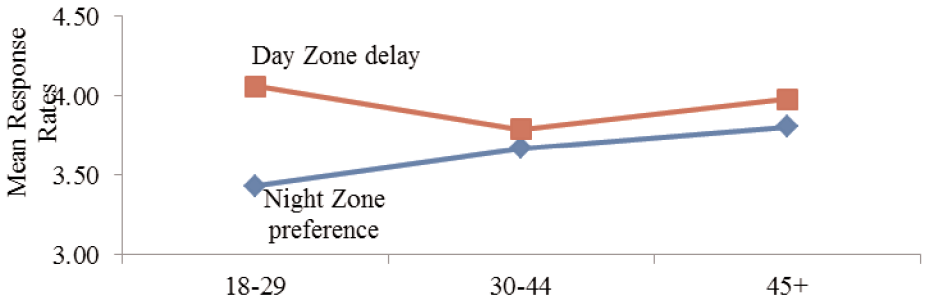


Figure 8. Age groups differences on the preference of the Nigh Zone option & the delay concerns of the Day Zone options.

Further analyses in Table 6 below, showed details of the significant differences found between the younger age group 18-29 years age group and the older age groups on three items of the Night Zone option. Similarly it showed the middle age group statistically different from the other two age groups on one item of the delay concerns of the Day Zone.

Table 6. Age group differences on both Night Zone preferences & Day Zone delay

Zone Type	Variables	Between Age groups	Mean Response Rates	SD		F(4,123)*	Partial Eta^2
Night	Accept the idea	18-29 & 30-44	3.11 & 3.63	1.1	.84	13.25	.05
		= & 45+	3.11 & 3.64	1.1	.83	11.52	.05
	Adopt it other	18-29 & 30-44	3.33 & 3.73	.91	.88	8.79	.04
	weak nights	= & 45+	3.33 & 4.02	.90	.85	10.92	.05
Day	Speed delays	30-44 & 18-29	3.08 & 3.74	.95	.96	24.67	.10
	not signals	= & 45+	3.08 & 3.60	.95	.97	11.04	.08

* P < .01

6. DISCUSSION

It was learned from results that the overall preference for the Night Zone option was 64 % and reached 74 % for the delay concerns of the Day Zone option. This revealed the overall strong rejection of the Day Zone as an option and shows the respondents preference to the Night Zone as a better option.

As was hypothesised, differences of attitudes existed between cultural groups on some dependent variables of both the preference of the Night Zone and the delay concerns of the Day Zone options. Two cluster analyses were conducted for each option following MANOVA analysis. The first Dendogram in regard to the Night Zone showed

the Asian groups a distance away from the rest of the groups followed by the African group. The Asian group recorded the lowest mean response rates for the Night Zone preference 3.43 compared to the European and the Australian groups 3.57 and 3.59 respectively. The Asian group has less believe about drivers to obey the flashing sign limit if the 40 km/h Night Zone option is implemented. There was statistical difference between them and the African and Australian groups. This may be reflected on road fatality rate on Asian cities such as China, India and Thailand. In Bangkok-based professor for instance, agree that drivers can avoid accidents if they are careful, obey the laws, and not speed", [23]. The Asian group had the lowest mean response rate of all the cultural groups on both options. This may also indicate their cautious responses on introducing the 40km/h scheme regardless of day or night, and further may prefer the 60km/h to remain.

Unlike Asian, the African group had the highest mean response rate for preferring the 40km/h Night Zone in particularly on their belief that such zone will reduce pedestrian fatalities. This belief is statistically significant compared to the rest of the groups. Literature search found that most pedestrian serious casualties occur in Africa during the night. A recent study in Ghana by [24] compared fatality rates between daytime and night-time showed that pedestrian casualties were significantly higher in the night-time than the daytime period ($p < 0.001$) at each severity level closer to 70 % at night compared to day time. While pedestrian deaths in South Africa, peaked during the evenings, with the highest incidence between the hours 18:00- 21:00, [3]. This may also reflect the concerns of the African respondents to the preference of the 40km/h option at night to reduce pedestrian fatalities. From another point of view some African respondents commented that 40km/h in the day time is slow and can be stressful as most drivers are in a hurry to finish some tasks unlike the night time which is considered to be of less pressure on drivers. A study found that the reduction in the stress differs according to the kind of information from slow-moving vehicles ahead, [25]

The second Dendogram of Figure 6 in regard to the Day Zone, indicated that European group was away from the rest of the clustered groups reporting less concerns of implementing the 40km/h Day Zone limit than the other cultural groups., particularly on the item of "Speed delays no signals", reported lower mean response rate of 3.16. This means that European group does not believe the delay is caused by the 40km/h speed limit but rather they believe, it is due to the traffic signals timing which is contributing to the traffic delays. European cities have for a long time researching and adopting speed reduction and have shown to saved many lives. The Austroads report revealed that EU countries have utilized harm minimization principles as the basis for setting EU standards. It added that Australian speed limits tended be to higher than those found elsewhere including in Europe [26]. They recommended that to reduce road injury rates further, more must be done to reduce driving speeds in Australia, and lowering speed limits may be a critical component in achieving this outcome. European Parliament is currently calling for speed limits on residential roads and single-lane roads without cycle tracks throughout the European community to be reduced to 30km/h in the interests of road safety. That would equate to 20m/h in the UK and the move has been welcomed by the campaign group "20's plenty for us", which lobbies for that limit

to be put in place, [27]. In fact 20m/h speed limits have already been introduced in a number of cities in Britain including Bristol and Liverpool, other cities looking at 20mph limits include Cambridge, Norwich, Brighton and Bath, the report added.

As for the Australian group, this study found that they are most concerns about the 40km/h Day Zone limit implementation. They recorded the highest mean responses rate 4.07 (77%). This result may suggest that the Australian may not be sure of the safety benefit for the pedestrians if Day Zone is implemented as an option around the city and elsewhere. The Local Government Authority is suggesting that such speed limit as the 40km/h need to be proven before implementation, [28].

In terms of age groups influence, the study found that the younger group (18-29) years was less in favor of the Night Zone option and reported strong rejection to the Day Zone option. This is revealing their intention to keep the 60km/h as a limit rather than introducing the 40km/h limit. It is well documented in literature about speeding involvement of male drivers particularly the (18-24) years group. In support of this, the study found that the there was a statistical difference between male drivers who believe the 40km/h is "too slow speed" during the day than female drivers.

In addition to that, the study also found that the older the age group the higher the acceptance of the 40km/h for the Night Zone option, due to the fact that the older age groups are more involved with teenage children who wish to attend clubs and other entertainment venues and that might make them more concern about their children safety as pedestrians. In this study, non-single drivers were more towards "Accepting the idea" of the Night Zone option and believing that the Night Zone option will be as safe as the School Zone in comparision to the single drivers. This may also explain that non-single drivers may be having children attending schools and are well educated about the danger of higher speed and particularly around school areas unlike the single drivers. A recent study by [29], found that 40km/h school zones in Australia have reduced children fatalities compared to the high number of Malaysian children fatalities, despite the stringent engineering measures by the latter.

To conclude, the paramount importance of knowing how road users think in terms of speed reduction, may lead to further understand some of the unsafe behaviours that relates to risky speed against pedestrians. In fact, pedestrian's crashes are of concern to many authorities in Asia including the Arab Gulf Countries. The kingdom of Saudi Arabia is not only the largest but also plays a host to many expatriates who may or may not understand the road rules including speed limit. They may need to be educated about the benefit of speed reduction as drivers and the importance of exposing the tangible benefit of avoiding a crash when lower speed limit is adopted.

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