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Examining the challenges of bicycle use in Jeddah city

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Abstract

In the presence of high rates of urbanization, sustainable transportation solutions are vital. Due to its social, economic and environmental benefits, bicycle is getting more attention in fast growing and high-dens cities. This paper attempts to examine the challenges of bicycle use in Jeddah city, Saudi Arabia. A survey has been conducted to collect the data for examining the challenges that face Jeddah residents for bicycle use. Visual assessment was conducted to observe the barriers for using the bicycle in Jeddah city. In conjunction to that, questionnaire was distributed to assess the attitude toward bicycle use and the perception of obstacles for using bicycle for different age groups of Jeddah city residents.

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Keywords: Bicycle facilities; planning; attitude; perception of barriers; Jeddah

1. Introduction

High urbanization rates pose continuous challenges for urban planners due to its environmental consequences. Transportation as such is a key concern where in sustainability is central particularly in car dependent cities. Bicycling provides several social, economic and environmental benefits and represents a sustainable transportation solution in fast growing and high-dens cities.

Bicycling in cities is resuming after a long dark age which was dominated by cars in past. Health and environmental benefits of bicycling are well established since long (Pucher & Buehler 2012) while the amplified livability and urban wellbeing are the key factors that make biking significant in cities like Copenhagen and Amsterdam (Nielsen et.al. 2013, Beck & Immers 1994).

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At present, cities are refurbishing their structure and forms to accommodate bicycle lanes due to ever increasing consciousness towards sustainable mobility. In fact, promoting walkable and bikeable localities by now are; amid the principal concerns of urban planners and policymakers; of which Australian, North American and West European cities are the wonderful examples (Pucher et.al. 1999, EC 2007, Austroads 2010, TCOC 2011, Lanzendorf & Busch-Geertsema 2014). Recently it has been observed in US cities, that; expansion of bike infrastructure on one hand stimulates the growth of multimode transit; while on the other hand it is a motivating force for real estate investment and urban growth (McCormick 2016).

As mentioned earlier; literature on bicycling related research investigations are primarily enthusiastic about its health benefits. Cycling yields several health gains in the form of modest to heavy physical activities corresponding with the medically suggested level of physical activity, specially physically active individuals who use active mode of transportation in form of cycling or walking gains less weight over time which means cycling and walking are the weapons against obesity (Bassett Jr et.al. 2008, Buehler et.al. 2011,Suminski 2014).Strategies aimed at regular cycling and walking in western European city Flanders seem to be sensible in minimising health burdens due to physical inactivity (Buekers et.al. 2015). AustCycle (National cycling skills program in Australia-2010 to 2013) drive demonstrated to have had an encouraging effect on body mass index (BMI) and weight amidst the participants (Rissel & Watkins 2014). Some studies have exhibited a negative connecion between the active transportation (cycling and walking) and the lipid profiles, and blood pressure (Hu et al. 2002, von Huth Smith 2007).

Doubtlessly direct or indirect health benefits attracts people to ride a bicycle though their choice to ride depends upon several other elements such as built environment surrounding the trips. In general bicyclist prefers even topography, highly mixed land uses, absence of highways and expressways, dense intersections and proper infrastructure for bicycling comprising less congested streets or marked bicycle lane, bicycle inclusive traffic signal and road signage; more accessible neighbourhoods stimulate bicycling and walking indeed(Winters et.al. 2010,Barton et.al. 2012).

Apart from being healthy for the riders, bicycling improves the quality of physical environment (Marshall & Garrick 2011).As an active mode of transportation bicycling eases traffic congestion and mitigate air and noise pollution (Handy & Xing 2011).

Safety of cyclist is another pertinent issue of focus; A BBC report reveals that thousands of cyclists are hurt every year in the UK because of road casualties (BBC 2016).Even the southern parts of the USA were found relatively meagre in term of bicyclists' safety (Godwin & Price 2016).Hence, it is quite interesting to know; why the cyclist are highly vulnerable at certain places and why they are encountering the risk factors. Traditionally; uses of safety apparatus such as helmets, and obeying the traffic signals are considered to be associated with the cyclist's safety (McClintock & Cleary 1996, McGuire & Smith 2000).In later years uses of mobile phones while cycling has emerged as an additional risk factor (de Waard et.al. 2010) ; however; a latest study sanctions that there are mainly behavioural and demographic factors behind the causalities and injuries caused to cyclists; younger male cyclist were at the high risk group due to their highly risk-taking habits (Hollingworth 2015).

Most recently; the body of literature has been shifting its attention towards scrutinize the extent of cycling at a later age. Age friendly cycling infrastructure was commended in Canadian cities to promote lifetime cycling considering its health and other benefits to the old people (Winters et.al. 2015). Similarly, in case of Malmö city (Sweden) scholars concluded that cycling seems to have an affirmative and a vital role in the movements of elderly people; cycling is not only a facilitator to older persons in their daily chores though it is also acts as a mean of pleasure (Ryan et.al. 2016).

In essence, bicycling has multifaceted benefits for the individuals and for the physical environment too. It works as a catalyst against obesity, blood pressure and lipid profiles that takes place in absence of physical inactivity. Role of bicycling in easing traffic congestion and transition of urban transportation from fossil fuelled 'car dominated' to less or 'zero carbon' based sustainable transportation is unquestionably substantial. Though bicycling is not practiced without risk and there are several infrastructural, built environments related, procedural and practice concerned, demographic and behavioural factors that should be taken care for the renaissance of bicycling across our cities.

To this end this paper attempts to to examine the challenges of bicycle use in Jeddah city, a fast growing and high-dense city in Saudi Arabia. Although, many previous studies have examined the determining the challenges of bicycle use in urban areas; this has received a little attention in Saudi cities in general and in Jeddah city in particular.