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CRITICAL EVALUATION OF NEW SOUTH WALES (NSW) REFORMS IN INTRODUCED AGE-BASED DRIVER LICENSING

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ABSTRACT

Driving is the primary mode of transport for many older people and enables participation in daily activities, employment and social interaction. Concerns have been raised due to increased crash involvement and vulnerability to crash injury. Though age-based licensing has been in place in New South Wales (NSW) for decades, in July 2007, reforms to licensing of older drivers were proposed. This critical review aims to examine the effectiveness of various interventions and the quality of the existing evidence published to date on the benefits of age-based licensing.

Key words: Driving, injury, licensing, New South Wales, Australia, age

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INTRODUCTION

Several regulatory measures, including speed limits, compulsory seat belts and driving restrictions, have been introduced across the globe in order to prevent unsafe behaviour on the roads and by doing so, limit the number of accidents and fatalities. Introduced in 2007 and reviewed in 2012, the policymakers in New South Wales (NSW) extended the existing measures by adding age restrictions part of the age-based licensing strategy ^[1]. While the policymakers continue to defend their position arguing that it represents a part of a systematic effort for minimising unsafe behaviour on the roads ^[1], wider stakeholder concerns about mobility and age-discrimination have emerged ^[2]. Although the review of the age-based licensing in NSW supported the underlying rationale ^[2], the growing body of empirical research has so far failed to uncover any significant positive impacts of these regulatory measures ^[3, 4, 5].

The aim of this review is tied to age-based licensing introduced in NSW. Following a critical review of the existing evidence on the benefits of age-based licensing, the effectiveness of age-based licensing is questioned. The final sections discuss factors influencing the decision-making process and strategies that public health practitioners can use to influence policy development.

Evaluation of NSW age-based licensing

The growing discussion in policymaking circles about the need for age-based licensing can be traced to the wider demographics and social trends ^[6]. The number of individuals aged over 65 years is increasing due to the ageing population phenomenon ^[7]. Moreover, active car use has become a key criterion for mobility ^[8], particularly in the context of rural areas of Australia. Concerns about driving competence of older individuals combined with the increased proportion of older

drivers have thereby led to policy discussions about age-based restrictions. Reliance on voluntary self-assessments of older drivers has been proven naïve as cognitive decline did not result in any decrease in self-evaluation of driving abilities^[9]. The notion of self-enhancement bias is well-recognised in the ongoing policy debate, impeding the reliability of any self-restriction strategies to promote road safety^[10]. Studies in support of the argument for the introduction of age-based licensing have established a premise that older drivers are more easily distracted, committing more safety errors in comparison to younger generations^[11].

From a methodological perspective, the validity of the supporting evidence in favour of age-based driving restrictions can be questioned due to the low mileage bias^[7]. On average, individuals over 70 years old tend to drive approximately 60 miles in local areas per week^[12]. Older individuals tend to drive mainly in urban areas that can be characterised by a higher complexity of traffic patterns, making them more prone to accidents. Consequently, the commonly used per-population or per-driver crash rates are insufficient to provide a realistic comparison due to the underlying differences in driving activity^[3]. Similarly, the statistical finding of a higher involvement of older drivers in fatal accidents has been explained by fragility, rather than significantly less safe behaviour on the road^[13, 14].

Stakeholders' perspectives have been explored by Adler and Rottunda^[15], suggesting that while the population generally supported driving restrictions for over 90-year old drivers and patients with a Parkinson's disease, the level of endorsement for such measures in the age group of 70-year old individuals was very low. A comprehensive evaluation carried out by Siren and Haustein^[4] revealed that negative effects of age-based driving restrictions in terms of reduced mobility outweigh any presumed positive gains in terms of safety on roads. Studies conducted in different settings, including Australia^[3], European Union^[4] and the United States^[5], have equally concluded that age-based driving interventions do not have any significant positive impacts on driving safety. Siren and Haustein^[4] went even further, considering such measures to be coercive rather than evidence-based.

The requirement for age-based testing has been associated with a significant decline in the number of individuals within the target population that wish to renew their driving licenses^[6]. On a comparative basis, this requirement results in individuals being 1.52 – 2.22 less likely to continue driving, suggesting that age-based driving licensing is effective in discouraging older drivers. The proposition that this decline leads to a safer behaviour on the road is however largely misplaced due to two inherent issues. On the one hand, the population at risk (adults over 65 years old) is very broadly defined. Empirical body of research has consistently reported that sensory impairments are better predictors of motor vehicle collision risk than age alone^[16]. The outcomes of the study conducted by Ross et al.^[6] however that the proportion of drivers with cognitive and visual impairments remain unaffected by the age-based licensing restrictions. Hence, the first issue revolves around the broadly defined focus of these interventions which fail to target the specific group at risk for accidents^[17].

On the other hand, the second issue revolves around the shortcomings in the testing process as part of the age-based licensing. General practitioners who are asked to assess the physical and mental abilities of older individuals to drive have been shown to have limited awareness of the regulations and would rather see another medical body to oversee this form of assessments^[18]. Novel testing methods (e.g. SIMARD-MD) have been questioned due to limitations in precision of the assessment of fitness-to-drive^[19]. One of the promising avenues in this stream of research can be found in the notion of hazard perception test that has been shown to predict motor vehicle accident risk^[20]. This measure has already been implemented in Queensland as part of the mandatory driving test. Positive contributions to hazard perception training have been shown by Horswillet al^[21]. In line with the increasing ease of distraction among older individuals, Aksanet al.^[22] recommended the use of tests assessing navigation performance.

An alternative approach has been proposed by Lucidiet al.^[23], providing validation for theoretical models of risky driving among young drivers in the context of the older population. According to the

authors, personality traits represent the key predictors of traffic violations and errors, highlighting the need for a more targeted screening method and development of positive attitudes towards safety on roads. Moreover, the role of advanced vehicle technologies has also been shown to address the age-based changes in driving behaviour of older individuals^[24].

Effectiveness of NSW age-based licensing

Consistent with the systematic evaluations of the age-based licensing restrictions^[3, 4, 5], the effectiveness of NSW regulatory measures can be expected to be very low. Drawing on the outcomes of the critical evaluation within the previous section, three particular challenges impeding the effectiveness of NSW age-based licensing can be pointed out.

First, the scope of the intervention is very broadly defined. Older drivers have been identified by policymakers as the specific group within the population that is more prone to motor vehicle accidents. Out of 370 deaths caused by road accidents last year, 64 were in the age group of over 70 years^[2]. This rationalisation however neglects the low mileage bias and driving patterns which increase the motor vehicle accident risk^[7]. Empirical findings reveal that age-based restrictions are largely ineffective in limiting the proportion of drivers with cognitive and visual impairments, a group that is more prone to accidents on the roads^[6].

Secondly, screening techniques used as part of the age-based licensing are inadequate to effectively assess fitness-to-drive^[19]. The proven validity of hazard perception test^[20] and assessment of navigation performance^[22] yet remain to be effectively utilised in NSW as part of the age-based licensing restrictions.

Thirdly, additional factor reinforcing the ineffectiveness of age-based licensing in NSW can be found in the relatively low support for the intervention from the stakeholders^[15]. These concerns not only question the policy but also impede the level of implementation. A practical example can be made of general practitioners who are largely unaware of the regulatory measures and often do not fulfil their role in the assessment

process as devised by the policymakers^[18]. The general lack of stakeholder support stems from the mobility concerns which seem to outweigh any potential gains in terms of improved road safety^[4].

Decision-making process

The ongoing policy debate on the topic of age-based licensing in NSW seeks to promote an evidence-based approach to the decision-making process^[2]. As a result, the Safety Committee established as part of the government initiative to promote safety on roads has carried out a thorough analysis of the patterns in motor vehicle accidents. This level of analysis has identified the older population as the key group prone to accidents, accounting for 64 out of 370 deaths in the last year. Given the higher number of traffic errors in this group of the population, a relationship between declining driving abilities and a higher risk of motor vehicle accidents has been formulated, resulting in the age-based licensing restrictions^[2]. The underlying factors shaping the policy discussion can be found in the negative impacts of road accidents on the citizens as well as the national healthcare system.

However, while the decision-making process is perceived by the government in NSW as evidence-based, Siren and Hausteina^[4] considered these practices to be largely coercive rather than evidence-based. A considerable number of various biases can be associated with the decision-making process in question, particularly relating to the presumed effectiveness of the screening process and the generalisation resulting in the identification of individuals over 75 years old as the group most prone to motor vehicle accidents. The inherent factors shaping the dynamics of the studied phenomenon, including cognitive and visual impairments have been however largely neglected or merely attributed to the age.

Public health practitioners' interventions

One of the principal features of an effective evidence-based approach to decision-making and policy formulation should be a continuous evaluation of the intervention and its impacts^[4]. In this context, public health practitioners need to continuously monitor and re-assess the presumed relationship between age and driving safety. Since

the policy intervention itself has been largely developed on the basis of a statistical relationship between older age and proneness to motor vehicle accidents, this relationship should also provide the basis for assessing the impacts of the age-based licensing. Particular attention however needs to be placed on better formulating the studied parameters and acknowledging the inherent biases influencing the validity of the statistical analysis (e.g. low mileage bias).

An additional area in which public health practitioners can aid in the ongoing process for promoting road safety lies in the development of effective screening methods and training techniques for limiting unsafe behaviour.

The main strategy for public health practitioners to voice their concerns about the validity of the age-based licensing restrictions in NSW is through direct queries and validated research studies. Comparative assessments between individual regions of Australia and highlighting the existence of cognitive biases neglected in the formulation of the age-based licensing restrictions could provide the basis for re-assessing the benefits derived from this policy. Furthermore, public health practitioners should also emphasise the negative attributes of this policy, mainly in the form of reducing mobility, seeking to establish a cost-benefit analysis for the age-based restrictions on driving^[4].

CONCLUSION

Overall, the general consensus in the empirical body of research on age-based licensing suggests that the underlying reason for the limited effectiveness of this strategy lies in the continued reliance on unsystematic screening methods. From an equity perspective, the effects of various disabilities rather than age should be prioritised in the development of licensing policy, yielding a more effective solution for preventing unsafe behaviour. Despite the continued reliance on evidence-based approach as part of the decision-making process, policymakers in NSW seem to neglect the wider factors affecting age-related unsafe behaviour on the roads. Interventions from public health practitioners in the form of developing clinical criteria based on disabilities, implementing a more effective assessment system and promoting training

opportunities for older drivers are thereby urgently needed.

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