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Monographic article

Effectiveness of pre-driver education programme for high school students: Application of Theory of Planned Behaviour on road risk taking behaviour[☆]

Eficacia de un programa propedéutico de manejo automovilístico para estudiantes de secundaria: aplicación de la teoría de la conducta planificada sobre el comportamiento de toma de riesgos al volante

Vilius Floreskul^{a,*}, Kristina Žardeckaitė-Matulaitienė^b, Auksė Endriulaitienė^b, Laura Šeibokaitė^b

^a Public Establishment "Prisijunk", Lithuania

^b Vytautas Magnus University, Lithuania

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Abstract

Lithuania is repeatedly rated among road safety outsiders having some of the worst statistical indicators. Traffic collisions are the leading cause of injuries and mortality of youth (5–25 years old) in Lithuania, age group 15–24 contributing the most. Based on literature review we concluded that theoretically rationalized educational road safety intervention could raise Lithuanian road safety standards in the future. Theory of Planned Behaviour (TPB) was employed to design and assess the effectiveness of pre-driver road safety education programme on changing behaviour components predicting risk taking behaviour of late teenage students. 11 graduate students ($N=302$) from 10 schools took part in a Quasi-experimental study, 6 schools were assigned to experimental group, 4 to control. Experimental group have received an educational 4h intervention, after a baseline questionnaire assignment. 5 components of road risk taking behaviour, based on Health Belief Model and Theory of Planned Behaviour constructs were measured in 2 week's time interval as indicators of effectiveness of the programme. Students from the experimental group had more negative attitude towards road risk taking behaviour, they were less willing to engage in such behaviour and they perceived their peers as less tolerant to this behaviour after the intervention. No significant changes in these components, but negative change in perceived threat, have occurred in the control group. Results showed that the programme was effective in changing behaviour components that predict students' risk taking on the road.

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Keywords: Education; Road safety; Theory of Planned Behaviour; Youth

Resumen

Lituania ha sido clasificada reiteradamente por los extranjeros como poseedora de algunos de los peores indicadores estadísticos en seguridad vial. Ahí, las colisiones de tráfico son causa principal de lesiones y mortalidad en jóvenes (5-25 años), especialmente en el rango de edad de entre los 15 a 24 años. La revisión de la literatura indica que los estándares Lituanos en seguridad vial podrían incrementarse con intervenciones educativas teóricamente racionalizadas. La teoría de la conducta planificada (TCP) se empleó para diseñar y evaluar la eficacia de un programa de educación en seguridad vial para preconductores, en el cambio de componentes conductuales que predicen conductas de toma de riesgos al volante (CTRV) en estudiantes adolescentes. Participaron en un estudio cuasi-experimental estudiantes del grado 11 ($N=302$) pertenecientes a 10

* Corresponding author.

E-mail address: v.floreskul@gmail.com (V. Floreskul).

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escuelas, 6 de ellas asignadas al grupo experimental y 4 al grupo control. El grupo experimental recibió una intervención educativa de 4 h, después de la aplicación del cuestionario de línea base. Como indicadores de efectividad del programa, 5 componentes de CTRV basados en constructos del modelo de creencias de salud y la TCP fueron medidos en un intervalo de 2 semanas. Los estudiantes del grupo experimental tuvieron actitudes más negativas hacia la CTRV, estaban menos dispuestos a participar en este tipo de comportamiento y percibieron a sus compañeros como menos tolerantes a este comportamiento después de la intervención. No hubo cambios significativos en los componentes, pero en el grupo control hubo un cambio negativo en percepción de amenaza. Los resultados mostraron que el programa logró cambiar componentes conductuales que predicen CTRV de los estudiantes.

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Palabras clave: Educación; Seguridad vial; Teoría de la conducta planificada; Jóvenes

Introduction

Lithuania is repeatedly rated among road safety outsiders having road fatality rate of 85 people killed per million inhabitants, compared to 52 which is EU average, or 30 and 28 in United Kingdom and Sweden, in 2013 (European Commission, 2014). Traffic collisions are the leading cause of injuries and mortality of youth (5–25 years old) in Lithuania, age group 15–24 contributing the most (Gurevičius & Drūtytė, 2009; Laukaitienė, Ciesiūnienė, & Bagdanavičiūtė, 2007).

Over representative youth involvement in road traffic collisions is well documented all around the globe (Bates, Davey, Watson, King, & Armstrong, 2014; Scott-Parker, Watson, King, & Hyde, 2012b; World Health Organization, 2013), there is a body of evidence rationalizing it (World Health Organization, 2007), which led to the development of effective countermeasures and reduction of youth road injuries and mortality in some Western countries (Chen et al., 2010; European Association for Injury Prevention and Safety Promotion (EuroSafe), 2013; Hosking, Ameratunga, Exeter, Stewart, & Bell, 2013; Sleet, Ballesteros, & Nagesh, 2010). Despite all this, Lithuania has failed to achieve significant improvements (Lunevicius, Herbert, & Hyder, 2010). It is suggested that Lithuania's low traffic safety standards appear to be structural deficiencies in responsibility sharing, cooperation between different governmental bodies and lack of awareness among decision makers (Government of Republic of Lithuania, 2014). All this result in poor road network condition and slow implementation of modern prevention measures (World Health Organization, 2009).

Often contemporary traffic safety strategies incorporate educational interventions (The World Bank Global Road Safety Facility, 2009). Nevertheless, effectiveness of these interventions is still debated. There are opposing opinions from different researchers stating that educational interventions have no effect on the risk of traffic collision involvement and that they can increase this risk by increasing exposure i.e. encourage adolescents to obtain driving license earlier. Others suggest that these measures can account to approximately 9% in collision involvement rates reduction (Lonero & Mayhew, 2010; Phillips, Ulleberg, & Vaa, 2010).

It should be acknowledged that there is no single definition and classification of educational road safety interventions, they are of different duration, employ variety of didactic measures as well as are targeted to different population groups and cover

range of topics (Buckley, Sheehan, Shochet, & Chapman, 2013). Naturally all of these determinants can influence intervention's effectiveness and cause contradictions in research findings presented hereby.

Selection of appropriate outcome measure matters as well. Scholars supporting educational interventions, suggest that the number of traffic collisions is not always appropriate outcome measure at first, since educational interventions primarily aim to influence persons behaviour (Tronsmoen, 2010). Collision involvement is related to other factors rather than purely on ones' behaviour; factors that are attributable to the level of exposure and environment i.e. annual mileage, road, weather, automobile conditions etc. The more appropriate outcome measure in this case is to assess ones behaviour or, as that is not always possible, other properties that predict it (Poulter & McKenna, 2010).

Behaviour researchers have proposed a range of theories aiming to predict and explain person's behaviour. According to Cognitive Dissonance theory, change in beliefs that drive certain behaviour can lead to change in the actual behaviour (Festinger, 1957). This assumption has been incorporated in Social Cognition models such as Theory of Planned Behaviour (TPB) and Health Beliefs Model (Ajzen, 1985; Rosenstock, 1974). TPB is widely accepted behaviour model which according to review of 185 studies is accountable to 39% of variance in intentions and 27% variance in behaviour (Armitage & Conner, 2001).

According to the TPB, intentions and behaviour are a function of one's attitudes (behavioural beliefs), subjective norms (normative beliefs) and perceived behaviour control (control beliefs). Attitudes refer to general beliefs about intended behaviour and its outcomes; subjective norm is a set of beliefs about social pressure related to engagement into behaviour under consideration; perceived behaviour control refers to beliefs about one's ability to successfully execute behaviour under consideration (Ajzen, 2014). According to TPB, changes in some of these beliefs can produce change in behaviour. These claims lay theoretical backgrounds for design and evaluation of health education programmes, and have been employed in a number of them, in and outside the field of road safety (Hackman, & Knowlden, 2014; Mann, 2010; Poulter & McKenna, 2010; Webb, Joseph, Yardley, & Michie, 2010).

According to presented considerations, beliefs favourable to dangerous behaviour are predicting execution of it, on the contrary, beliefs favourable to safe behaviour can be compared to

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