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SMART PHONE APP TO PROMOTE CORRECT CAR SEAT USE: RESULTS FROM A RANDOMISED CONTROLLED TRIAL

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Background Child safety seats are known to reduce the risk of death from motor vehicle crashes by between 50%–80%. CSS use among younger children is common, use for older children is low, and CSS misuse is widespread. We developed a smart phone app to promote correct CSS use among children younger than 8 years old and tested it with parents of children who presented in one urban and one rural paediatric emergency department in 2 US states.

Methods Research staff helped enrolled parents download the Safety in Seconds app to their smart phone. Parents completed a series of assessment items about their CSS knowledge and beliefs. Intervention group parents reported in more detail about their CSS beliefs and practices with all age-eligible children while control parents answered a similar number of items about another safety topic. Both groups received an electronic report from the app in real time that offered recommendations for improving their health behaviour of interest. All parents received periodic text messages and completed follow up reports through the app at 3 and 6 months. Study enrollment is expected to end in January 2016 and follow ups by July 2016.

Results To date, 761 parents completed baseline surveys (32% rural; 68% urban). Study parents, on average, are black (65.6%), employed (65.8%), with more than a high school education (60.0%), with no differences between study groups. Index child is 5.2 years old. At 6 month follow up, more intervention group parents had gotten their child's safety seat inspected by a car seat technician (34% vs 24%) and properly identified that children should ride in the back seat of the car until at least age 13 (35% vs 27%). Additional CSS knowledge, beliefs and practices will be explored when the final data set is ready.

Conclusions Child passenger safety remains an important public health problem. Programs are needed to correct widespread misuse and to promote CSS use among older children.

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USING PEER COMMUNICATED BEHAVIOURAL NORMS ABOUT SAFETY TO REDUCE INJURY-RISK BEHAVIOURS BY CHILDREN

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Background Previous research has shown that children engage in greater physical risk taking when in an elevated positive mood state. The current study examined whether exposure to a peer-communicated behavioural norm about safety could counteract this effect.

Methods Community recruitment resulted in a sample of 120 children (7 to 10 years), including 60 boys (M age = 8.13 yrs; SD = 0.93 yrs) and 60 girls (M age = 8.02 yrs; SD = 0.91 years). Children's intentions to engage in risk taking (based on identifying from photos which risky playground behaviours they would

do if they had to make a videotape later that day) and actual risk behaviours (based on how they behaved when running through an obstacle course that contained hazards) were measured while in a neutral and positive mood state, with positive mood induced experimentally via false positive feedback during the playing of a novel videogame (emotion ratings throughout the session validated the positive mood induction worked; there was a significant increase in positive mood, as expected, $t(119) = 15.12$, $p < .001$). Before completing the risk taking tasks when in a positive mood state, children were exposed to either a peer-communicated behavioural norm about safety or a non-norm communication; this exposure occurred by the child overhearing two children supposedly talking next door (this was actually an audiotaped recording).

Results Exposure to the non-norm communication had no effect on risk taking: children showed an increase in risk taking and intentions when in a positive aroused mood state compared to a neutral mood state (M change = +0.65 standardised RT score), $F(1, 59) = 71.31$, $p < .001$, $\eta_p^2 = 0.55$. In contrast, exposure to the peer-communicated behavioural norm about safety was effective to counteract this effect: children actually showed a significant decrease in risk taking and intentions when in a positive compared to neutral mood state (M change = -0.47 standardised RT score), $F(1, 115) = 84.77$, $p < .001$, effect size $\eta_p^2 = 0.42$. Both risk taking measures yielded the same effects.

Conclusion Manipulating children's exposure to peer-communicated behavioural norms can be an effective strategy for reducing injury-risk behaviours.

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HOW DO CHILDREN LEARN TO CROSS THE STREET? THE PROCESS OF PEDESTRIAN SAFETY TRAINING

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Background Pedestrian injuries are a leading cause of child death, and they may be reduced by training children to cross streets more safely. Training is most effective when children receive repeated practice at the complex cognitive-perceptual task of judging moving traffic and selecting safe crossing gaps, but limited data inform how much practice is required for children to reach adult levels of functioning. Using existing data, we examined how children's pedestrian skills changed over the course of six pedestrian safety training sessions.

Methods As part of a randomised controlled trial on pedestrian safety training, 59 children ages 7–8 crossed streets within a semi-immersive virtual pedestrian environment 270 times over a 3-week period (6 sessions of 45 crossings each). Feedback was provided after each crossing, and traffic speed and density advanced as children's skills improved. Baseline and post-intervention pedestrian behaviours were assessed in the virtual environment.

Results Over the course of training, children entered traffic gaps more quickly and chose tighter gaps to cross within; their crossing efficiency appeared to increase. Post-intervention performance was superior to baseline and by the end of training, some aspects of children's pedestrian behaviour were comparable to adult behaviour (e.g., attention to traffic; start delay – the time between safe traffic gaps appearing and children's entry into those gaps). However, other aspects were not (e.g., collisions with oncoming vehicles).

Conclusions Repeated practice in a simulated pedestrian environment helps children learn aspects of safe and efficient pedestrian behaviour. Six twice-weekly training sessions of 45 crossings each were insufficient for children to fully reach adult pedestrian functioning, however, suggesting longer or more intense training may be needed. Future research should continue to study the trajectory and quantity of training needed for children to become competent pedestrians.

Parallel Sessions Monday 19.9.2016 14:30–16:00

Preparedness and Resilience

Parallel Mon 2.1

123 PREPAREDNESS AND REGIONAL DIFFERENCES IN FINLAND

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Background Finland is sparsely populated country where infrastructure varies between urban and rural regions. Safety and security services are part of the local infrastructure and provided by the state and local municipalities. Hypothesis is that regional differences, for example lack of rescue and security services in rural regions, has affected preparedness culture and injury prevention among population. Research is needed to define the essence of local resilience.

Methods The research examines regional differences by using data from two separated surveys (1. N = 3000 and 2. N = 1000). The data have been collected on 2015. Analysing data by using statistical methods it's possible to reveal differences, based on regions, among population.

Results There are a significant differences between rural and urban population. Compared to cities most of the Finns rates countryside more safe and secure place to live. Especially those who live in rural area considers countryside safer place to live. In rural areas population also strongly believes, compared to urban population that neighbours are providing assistance in case of emergency. In rural areas population is more prepared to manage in emergency conditions. In rural areas rescue and security services are less provided in urban environments. However results reveal that services are seen as important as in urban areas even supply of services is weaker.

Conclusions These results reveal that population in the rural areas have higher level of self-preparedness than population have in urban areas. Lack of rescue and security services may be one of the key factors to enhance self-preparedness.

124 DISASTER PREPAREDNESS OF PRIVATE SOCIAL SERVICES CALLS FOR COOPERATION WITH THE PUBLIC SECTOR

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Background Global warming increases the amount of disasters. The impacts of the phenomenon on social, economic and

ecological environment are, thus, greater than before. Finland is not situated in a very disaster prone area, however, hazardous storms are not unknown to the country. Consequences of disasters are worst for people who are also in normal life more vulnerable, thus, we need knowledge how these population groups have been protected in case of disasters. Disaster preparedness is obligatory for municipal social work and services. The legal obligation does not, though, apply to the private sector. In Finland one third of the social services are produced by private organisations and their responsibility of preparedness planning should be agreed on while purchasing the services.

Methods In our study we explored private social service organisations' adoption of mitigation activities after heavy storms in 2013 and the preparedness measures taken. We sent a questionnaire to all private social service organisations producing residential care in Finland. SPSS descriptive statistics were used to analyse the data. Majority of the clients in these services were the elderly, but included also disabled, clients with mental health and substance abuse disorders, and children taken into care.

Results Our findings showed that the storms had had impacts on the daily activities of nearly one fourth of the service producers. The major impacts had been to energy supply. Various measures were taken to mitigate the effects, though minority had to evacuate their clients. Only 10 per cent of the respondents reported that preparedness planning was a requirement agreed on with the service purchaser.

Conclusions The most vulnerable to disasters are people dependent on others, which most often include those in residential services. Consequently we recommend the service purchases to include private social work and services in their disaster preparedness activities.

125 IMPROVING CRITICAL INFRASTRUCTURE RESILIENCE BY IDENTIFYING VULNERABLE INTERCONNECTIONS

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Background Critical infrastructure (CI) covers the structures and functions that modern societies require to operate continuously. Failures in these infrastructures may cause substantial undesired consequences in other services due to the high degree of interconnectivity of services. Therefore the continuous operation of these services is essential even during a severe failure situations. This study proposes an approach for identifying the vulnerable interdependencies between critical infrastructure (CI) networks so that the resilience of the CI can be improved. The study focuses on the electricity distribution, telecommunications and IT infrastructures.

Methods The study was conducted during the years of 2014 and 2015 for National Emergency Supply Agency in Finland. The study included six workshops where the material was collected based on threat scenario and verified by the participating CI companies that constitute the regional preparedness committees.

Results In order to find the potential vulnerable interconnections the following approach was introduced: a) collect and structure expert knowledge related to essential activities and failure types, b) analyse the data and create causalities, c) model the relevant influence chains and d) identify the local preparedness requirements. The approach assist also in identifying and creating decision support analysis such as geographical vulnerability analysis.