



Original article

Is road safety being driven in the wrong direction?

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Abstract

Background: Road traffic crashes are a major cause of death and injury worldwide and are set to increase as low- and middle-income countries motorize. United Nations (UN) and World Health Organization (WHO) road traffic injury prevention efforts depend on support from external organizations, many of which have commercial interests in increasing car use. Because of concerns about conflict of interest, this study objectively assessed the activities of a key WHO collaborator, the Global Road Safety Partnership (GRSP).

Methods: We conducted a quantitative content analysis comparing GRSP publications and the 2004 WHO *World Report on Road Traffic Injury Prevention*. Dictionaries of terms were constructed for each of the evidence-based interventions detailed in the World Report. Text analysis software was used to generate word frequency counts of those terms to compare the World Report and GRSP documents.

Results: Education, information and publicity featured far more commonly in the GRSP publications than in the WHO World Report [word frequency ratios and 95% confidence intervals: GRSP Newsletter 3.09, 2.53 to 3.78; Around GRSPs World 4.69, 3.76 to 5.87; GRSP Project summaries 3.42, 2.59 to 4.51] On the other hand, compared with the World Report, reducing car use [GRSP Newsletter 0.36, 0.27 to 0.48], minimizing exposure to high-risk scenarios [GRSP Newsletter 0.04, 0.02 to 0.09] and encouraging the use of safer modes of travel [GRSP Newsletter 0.02, 0.01 to 0.08] rarely featured in GRSP publications.

Conclusions: The GRSP focuses on educational interventions, for which there is no evidence of effectiveness. Furthermore, the GRSP does not appear to consider the full range of WHO interventions. As motorization growth has serious negative implications for health, including those associated from physical inactivity, climate change and air and noise pollution, it is imperative that the UN and WHO do not allow business interests to dominate public health interests.

Key words: Road traffic injury, Public private partnerships, Content analysis

Key Messages

- The Global Road Safety Partnership is a public private partnership aiming to reduce road deaths and injuries that includes car makers and oil companies.
- We used word frequency analysis to compare the reported activities of the GRSP with those recommended by WHO following its assessment of intervention effectiveness.
- We found the GRSP has a strong focus on road safety education for which there is little evidence of effectiveness but neglects effective programmes with health and environmental benefits such as reducing car use.
- Although car makers and oil companies have greater financial resources, partnerships with them are unlikely to yield important road safety benefits because their business objectives conflict with public health objectives.

Introduction

Each year, world wide, approximately 1.3 million people die in road traffic crashes,¹ and tens of millions seek medical attention for non-fatal injuries.²⁻⁴ Over 90% of the deaths and injuries are in low- and middle-income countries (LMIC). At least 23% of all road traffic deaths are among motorcyclists, 22% among pedestrians and 5% among cyclists.⁵ Without concerted action, road traffic deaths and injuries are predicted to double by 2030.² Most of the increase will be in LMIC where motor vehicle use is increasing rapidly.⁶

The *World Report On Road Traffic Injury Prevention*, published by the World Health Organization (WHO) in 2004 (Figure 1), highlighted the global problem of road traffic injuries and the urgent need to implement effective interventions, especially in LMIC.³ The WHO, with a donation from Bloomberg Philanthropies, has set up a process to monitor progress in road traffic injury prevention through its Global Status Reports.⁵ The most recent report showed that whereas road death rates are falling in most high-income countries, they are increasing in two-thirds of LMICs.⁷ The report emphasized the need to put in place and enforce road safety legislation relating to speed, alcohol, helmets, seat belts and child restraints, and also for more attention to be paid to the needs of pedestrians and cyclists through infrastructure change and transport policy.

The WHO has limited financial resources and is reliant on monetary and in-kind contributions from external donors for much of its road traffic injury work. Many of these donors are in the private sector or are organizations led by the private sector. In the context of road safety, most of the private-sector businesses are related to motor vehicle use, including car, tyre and fossil fuel companies, or are bodies established by motor vehicle related businesses and/or are businesses with large fleet operations.

With the increased involvement of the private sector in road traffic injury prevention, concerns have been raised about potential conflicts of interest.⁸⁻¹⁴ Reducing motor vehicle use would have safety, health and environmental

benefits but would conflict with corporate objectives to increase shareholder returns. Private-sector actors may want to divert attention away from road safety policies that conflict with their business objectives, irrespective of their effectiveness in preventing injuries.

Nevertheless, there have been few rigorous assessments of private sector-led road safety initiatives. This study aimed to provide a systematic assessment of the Global Road Safety Partnership (GRSP), a public-private partnership that aims to facilitate road safety programmes in selected countries and to support WHO initiatives. Past criticisms of the GRSP include inappropriate emphasis on unproven road safety interventions, in particular safety education for pedestrians.^{8,15} Similar criticisms have been aimed at other industry-sponsored public health initiatives where educational programmes of unproven effectiveness are promoted over and above established effective interventions.¹⁶

The GRSP is highly prominent in United Nations (UN) and WHO road safety activities, as evidenced by its involvement in the WHO best-practice manuals. The manuals are excluded from our assessment of the GRSP as they do not relate to GRSP activity. However, they do both illustrate the level at which the GRSP operates and characterize the degree of inter-relationship between organizations involved with UN/WHO efforts on road traffic injury prevention. The GRSP Chief Executive was one of the four advisory committee members of all six manuals produced to date, and the GRSP logo appears on the covers along with WHO, the FIA Foundation (FIAF) and the World Bank. The copyright on two of the manuals is held by the GRSP, who produced them with funding from the World Bank Global Road Safety Facility (GRSF). The two major contributors to the GRSF, the World Bank and the FIAF, were and still are members of the GRSP. The GRSP contracted out the drafting of both manuals to three other GRSP members.

Corporate members form the largest part of the GRSP executive committee. The 2008 GRSP annual report

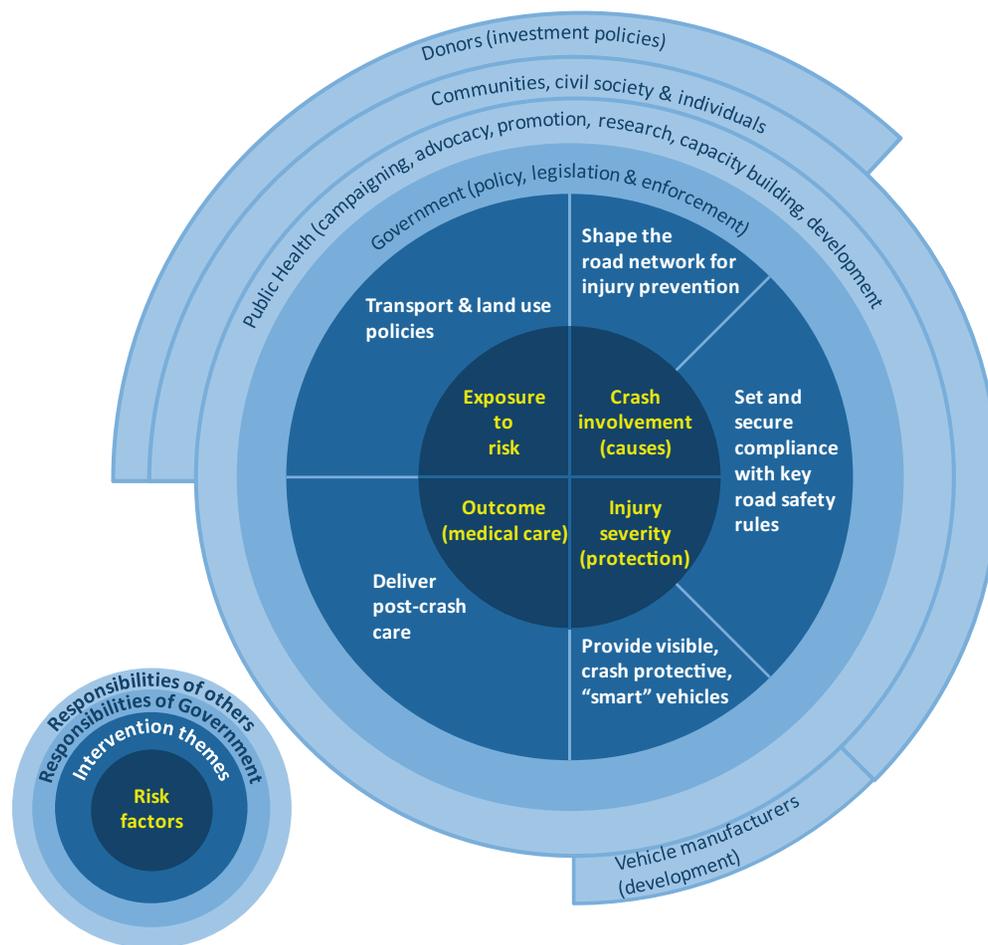


Figure 1. World Report on Road Traffic Injury Prevention (WHO 2004).

indicated that 20% of its funding (1.1 million chf) came from (mainly corporate) membership fees, 34% (1.8 million chf) from the Global Road Safety Initiative 1 (GRSI-1), a scheme wholly funded by five corporate members of GRSP; 14% (0.74 million chf) from the GRSF, funded by GRSP members the FIAF and the World Bank; and 31% (1.6 million chf) from three bilateral agencies, two of which, Swedish International Development and Cooperation Agency and Department for International Development (UK), were GRSP members at the time.¹⁷ The most recent GRSP annual report shows a slight drop in membership fees (830,000 chf), continued support from Global Road Safety Initiative 2 (GRSI-2) and substantial new income by the way of project-specific funding from the Bloomberg Foundation and European Union.¹⁸

We used word frequency analysis to provide a reproducible and unbiased assessment of the road safety activities of the GRSP in comparison with those recommended by the WHO in the *World Report on Road Traffic Injury Prevention*. We developed dictionaries of words and phrases that describe the range of road safety activities and compared the occurrence of these words and phrases in

documents describing GRSP road safety activities and in the *World Report on Road Traffic Injury Prevention*. In this way, we identify the road safety activities prioritized by GRSP and those that were neglected.

Ethics committee approval was not required for this work as all data were obtained from documents in the public domain.

Methods

GRSP documents

We evaluated all of the documents on the GRSP website, to identify those that represented GRSP work. Documents were included if they were:

- wholly under the editorial control of the GRSP,
- related at least in part to GRSP focus country activity,
- not produced with or on behalf of other agencies,
- not solely summaries of the work of other agencies,
- in a format that could be imported into content analysis software.

Two groups of publications met the inclusion criteria: the regular newsletter *GRSP News* and the periodical *Project Summaries*. We downloaded all 27 editions of *GRSP News* that were available on 13 May 2010 and all 35 *Project Summaries* that were available on 11 November 2010. As *GRSP News* is a collection of articles and reports, each edition was inspected and the text was separated into discrete units relating to different topics. Because the section *Around GRSPs World* reported activities in GRSP focus countries, these units were flagged to allow separate analysis. The GRSP documents were downloaded and imported into the content analysis software QDA Miner version 3.2.4. The exact download, separation and importation process is detailed in full elsewhere.¹⁹

Comparison document

The full-length English language version of the *World Report on Road Traffic Injury Prevention* was downloaded from the WHO website on 22 January 2009 and loaded chapter by chapter into QDA Miner. The intervention chapter was based around five intervention themes, each of which had one or more objectives, with 18 objectives in total. In turn, each objective had one or more relevant actions, of which there were 58 actions in total, some of which had one or more specific sub-activities.

Words and phrases relating to each of the 58 actions were identified from the text of the World Report. The context of their use in the World Report was evaluated using the key-word-in-context function of QDA Miner add-in module of WordStat v6.1. This sometimes involved using phrases or combinations of words in close proximity to avoid ambiguity. Where there were common synonyms for a word, such as motorbike and motorcycle, the common alternative was added to the list. This process resulted in 58 dictionaries of words and phrases, including 456 entries related specifically and exclusively to one of the 58 road safety activities. For example, the dictionary for objective 4.3 'Medicinal and recreational drugs' contained five pairs of words. Wildcards (*) were used to allow for plurals and other grammatical variations. To be counted against this objective, the following pairs of words had to occur within three words of each other within the same sentence; drug* and effect*, drug* and impair*, drug* and level*, drug* and test*, drug* and use*.

Comparison

The frequency of occurrence of words and phrases for each intervention was obtained using WordStat for the entire World Report, excluding references, and for the GRSP

documents. These were then aggregated up to the objective and theme levels.

Word frequency rates were calculated as the frequency of occurrence of dictionary terms divided by the total number of words in the documents. The word frequency rates were compared between the World Report and GRSP documents in terms of the ratio of word frequency rates, for which a 95% confidence interval (CI) was calculated. Sometimes ratios could not be calculated because a given word did not appear in the GRSP documents.

Results

The word frequency ratios and their 95% confidence intervals for each of the 18 World Report objectives by each GRSP document type are shown in Figures 2–4 and are described by theme below. A ratio greater than 1 signifies more mentions in the GRSP document than in the World Report.

Managing exposure to risk through transport and land use policies

The first theme in the World Report was policy actions to prevent road traffic crashes. The first objective was to reduce motor vehicle use through land use planning and to facilitate shorter non-motorized journeys. The second objective was to encourage the use of safer modes of travel, including walking, cycling and public transport. The third objective was to limit exposure to high-risk scenarios, for example by limiting motor vehicle performance and more restrictive driver licensing.

GRSP reports made little reference to any activities within this theme, other than repeated reports of a safe route to school programme in Sakhalin, Russia, which focused on diverting children away from busy traffic routes rather than diverting traffic away from busy pedestrian routes (*GRSP News* 0.36, 0.27 to 0.48; *Around GRSPs World* 1.14, 0.84 to 1.55; *Project Summaries* 0.69, 0.42 to 1.11).

Shaping the road network for injury prevention

The second intervention theme in the World Report detailed highway engineering actions to prevent road traffic accidents from occurring or to mitigate their effects should they occur. The first objective was to ensure that safety was a key component in road network planning, including setting speed limits according to road function. The second objective was to incorporate safety features into road design, including the separation of traffic, area-wide safety management and traffic calming. The third objective was to correct faults in the existing road network by taking

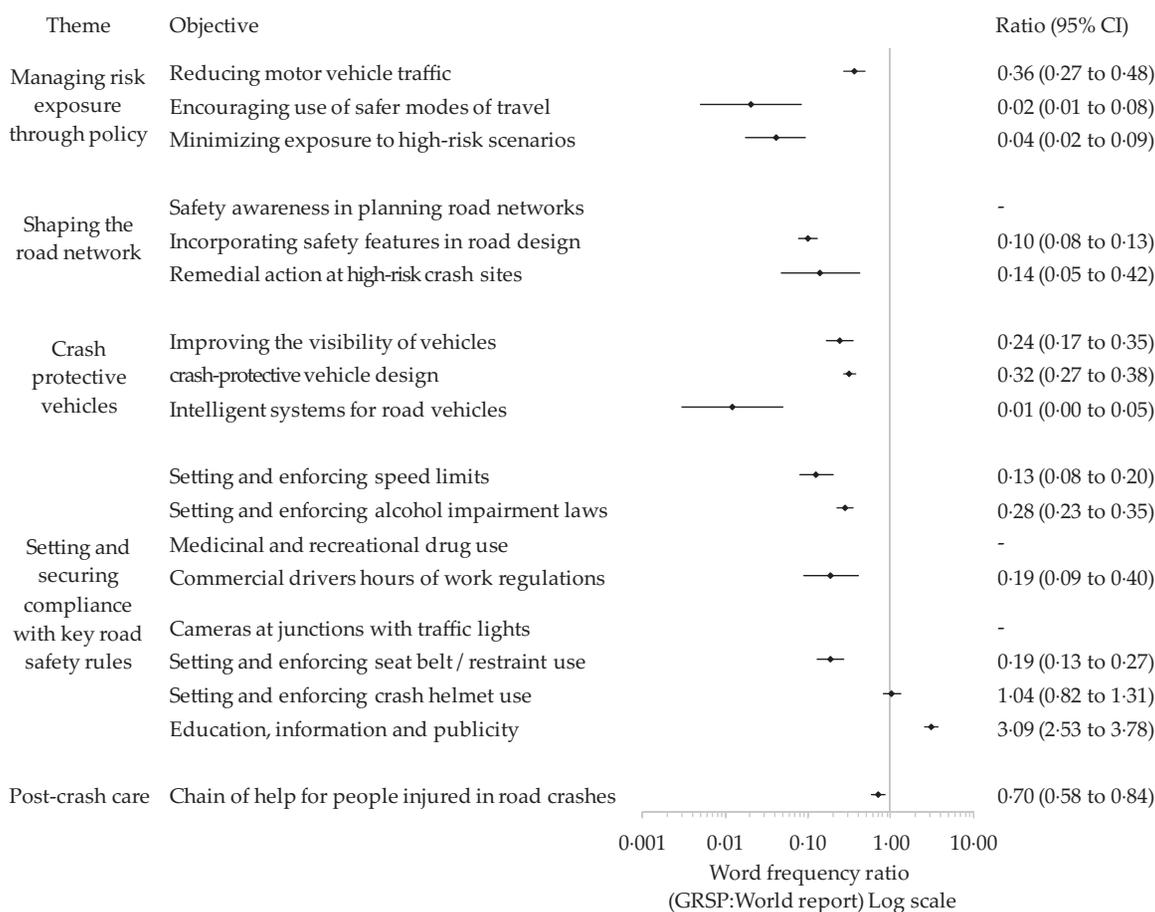


Figure 2. GRSP News.

remedial action at high-risk crash sites, including skid-resistant surfacing and use of central refuges.

The GRSP made no reference to any activities related to the objective regarding safety awareness in planning road networks and few references to the incorporation of safety features into road design (*GRSP News* 0.10, 0.08 to 0.13; *Around GRSPs World* 0.23, 0.81 to 0.32; *Project Summaries* 0.38, 0.27 to 0.54). The project summaries gave greater emphasis to remedial action at high-risk crash sites than did the WHO which emphasized area-wide measures (*GRSP News* 0.14, 0.05 to 0.42; *Around GRSPs World* 0.55, 0.18 to 1.64; *Project Summaries* 4.29, 2.15 to 8.58).

Providing visible, crash-protective, 'smart' vehicles

The third intervention theme in the World Report detailed vehicle design and technological solution objectives to prevent road traffic accidents or to mitigate their effects should they occur. The first objective was to improve the visibility of vehicles and road users, including compulsory daytime running lights and the use of reflective materials. The second objective was to make vehicles safer in the

event of a collision, for those both inside and outside vehicles of all sizes. The third objective was to develop and use vehicle technologies that might prevent or limit the effects of collisions, including automatic speed adaptation and alcohol interlocks.

The majority of GRSP references to improving visibility related to non-motorized and pedestrian visibility as opposed to the visibility of vehicles (*GRSP News* 0.24, 0.17 to 0.35; *Around GRSPs World* 0.18, 0.09 to 0.36). Almost all of the GRSP references to crash-protective vehicle design related to car occupant protection, with almost no references to improving design to protect smaller vehicles, pedestrian or cyclists in the event of a collision (*GRSP News* 0.32, 0.27 to 0.38; *Around GRSPs World* 0.37, 0.29 to 0.49; *Project Summaries* 0.42, 0.30 to 0.59). There was only one GRSP reference to the intelligent vehicle objective (*GRSP News* 0.01, 0.00 to 0.05).

Setting and securing compliance with key road safety rules

The fourth intervention theme in the World Report detailed eight objectives that sought to set standards and

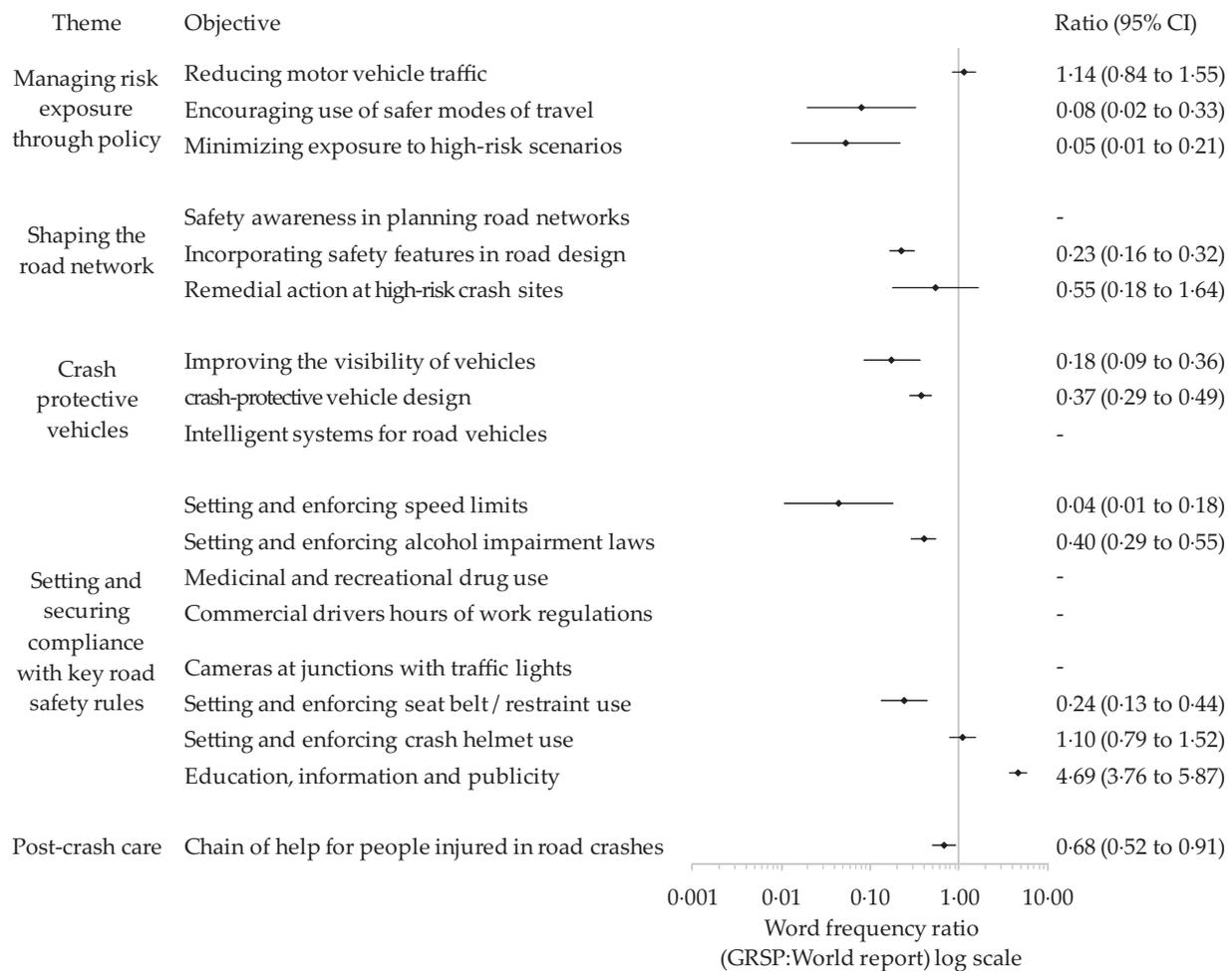


Figure 3. Around GRSP's World.

laws and enforce road users' compliance with them to prevent road traffic accidents from occurring or to mitigate their effects should they occur. These objectives covered setting and enforcing laws relating to speed limits, alcohol impairment, drug impairment, commercial drivers' hours of work, seat belt use and crash helmet use, as well as advocating the use of cameras at traffic light junctions and a discussion on the general role of education, information and publicity.

Although speed was often mentioned in GRSP documents, this was not in the context of speed reduction enforcement activities (*GRSP News* 0.13, 0.08 to 0.20; *Around GRSPs World* 0.04, 0.01 to 0.18; *Project Summaries* 0.26, 0.11 to 0.59). Similarly, alcohol impairment was often referred to but usually in the context of mass media campaigns (*GRSP News* 0.28, 0.23 to 0.35; *Around GRSPs World* 0.40, 0.29 to 0.55; *Project Summaries* 0.79, 0.57 to 1.08). There were no references to drug impairment and only three references to commercial drivers' hours of work (*GRSP News* 0.19, 0.09 to 0.40). Seat belts and child restraints were often referred to

but not in the context of enforcement (*GRSP News* 0.19, 0.13 to 0.27; *Around GRSPs World* 0.24, 0.13 to 0.44; *Project Summaries* 0.39, 0.21 to 0.75). Bicycle and motorcycle helmet use and the enforcement of related laws were more commonly referred to by GRSP than in the World Report (*GRSP News* 1.04, 0.82 to 1.31; *Around GRSPs World* 1.10, 0.79 to 1.52; *Project Summaries* 2.78, 2.06 to 3.76). There were no references to traffic light cameras. The role of education, information and publicity was the most commonly mentioned theme in GRSP documents (*GRSP News* 3.09, 2.53 to 3.78; *Around GRSPs World* 4.69, 3.76 to 5.87; *Project Summaries* 3.42, 2.59 to 4.51), despite their value for injury prevention having been questioned in the World Report and in a Cochrane review.²⁰

Delivering post-crash care

The final intervention theme in the World Report detailed a single objective that sought to ensure that once a road traffic crash had occurred, the emergency response system, hospital care facilities and rehabilitation services were in

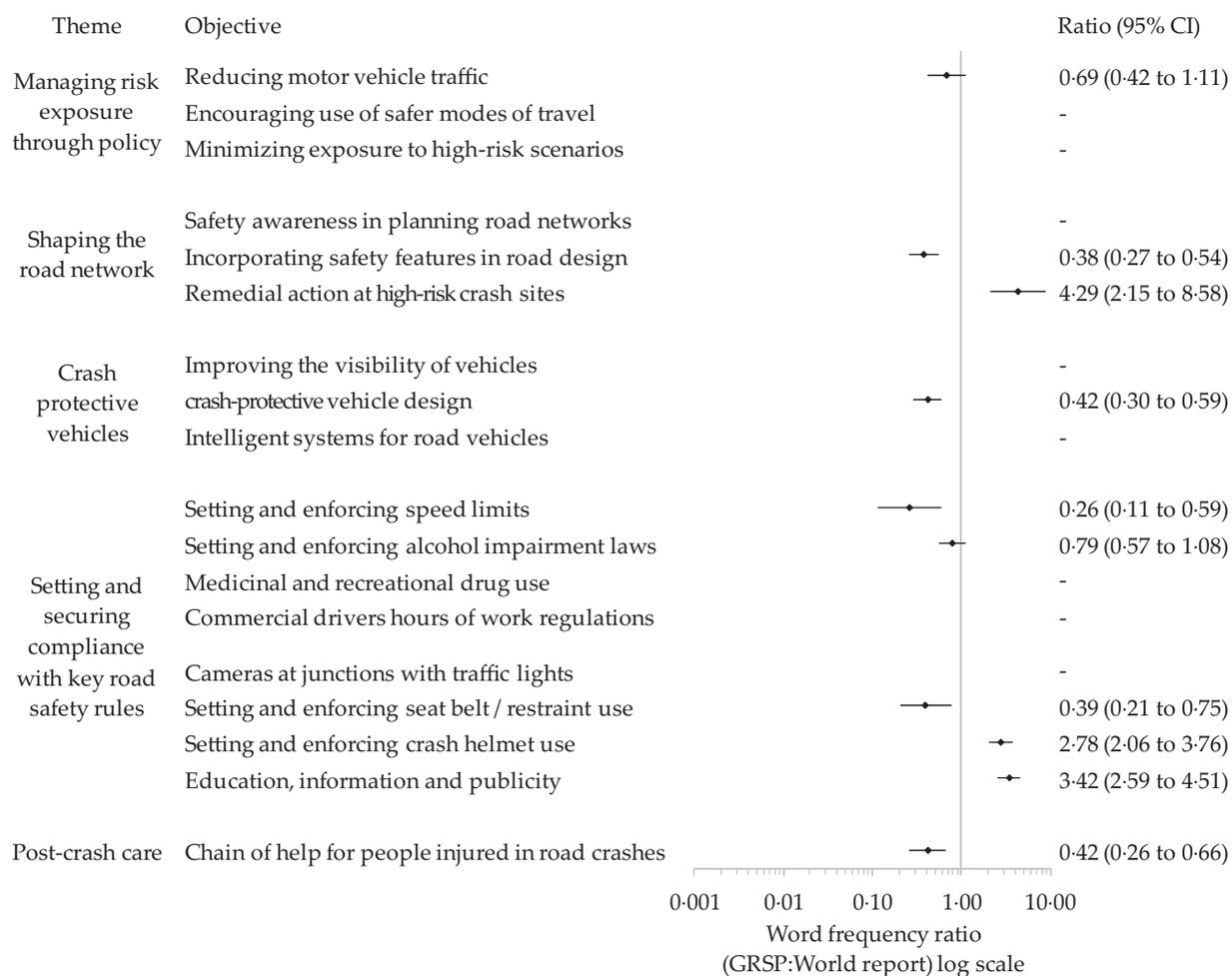


Figure 4. GRSP Project Summaries.

place to limit and repair the damage done to those involved.

Of the seven specific actions within this objective, almost all GRSP references were to the training of pre-hospital bystanders and access to pre-hospital rescue and medical rehabilitation services (*GRSP News* 0.70, 0.58 to 0.84; *Around GRSPs World* 0.68, 0.52 to 0.91; *Project Summaries* 0.42, 0.26 to 0.66).

Discussion

We used word frequency analysis to assess the policy focus of the GRSP, a public-private partnership for road safety. There was a strong emphasis on education, for which there is little evidence of effectiveness, and a neglect of programmes with wider health and environmental benefits, such as efforts to reduce car use and promote more sustainable modes of travel.

We appreciate that it is impractical to expect businesses to advocate financially damaging solutions, and recognize

that they are unlikely to have expertise in such areas. However, the continued promotion of unsuitable alternatives may divert attention and delay or prevent more appropriate actions being undertaken.

Our conclusions are based on two assumptions. First, that GRSP publications provide a fair representation of GRSP activities. Although editorial constraints may have limited coverage of some road safety activities, it is unlikely to have systematically excluded coverage of particular activities or themes. Second, we assumed that the road safety terms used by the WHO and GRSP describe the same road safety activities. Although the words used in the World Report formed the basis of dictionaries, wherever possible we used all variants and alternatives.

Financial pressure on the UN system has led to a proliferation of public-private partnerships.²¹ By 2005, the UN was heavily committed to such partnerships, many of which are controlled and funded by the private sector.²² Supporters of public-private partnerships claim they provide win-win solutions to global health problems²³

whereas opponents question whether such solutions are possible.^{24–28} Some partnerships have been accused of lacking local involvement, diverting domestic resources, lacking long-term security, having uncertain processes for setting goals and ultimately undermining the UN in the long run.^{29–31}

The GRSP has high status within the UN Road Safety Collaboration (UNRSC), the mainstay of the UN's efforts to improve road safety. The UN has attempted to guard against undue commercial interests in the UNRSC by limiting corporate membership to no more than 25%. However, this cap may be undermined by the inter-relationships and dependencies between members, between members and the automotive industries, and by the misclassification of business associations and coalitions.

At the time of the analysis, the corporate members of GRSP were four of the five largest oil companies, BP, Chevron, Shell and Total, the tyre manufacturers, Bridgestone and Michelin and the car manufacturers, Honda, Renault and Toyota along with Sanofi and Nestle. Eight of those 11 are members of the World Business Council for Sustainable Development which cautioned that the growing burden of road traffic injuries may affect the longer-term financial well-being of all related industries as they struggle to make private motor vehicles a sustainable transport option.³²

Two of the five civil-society GRSP partners were industry founded or funded bodies, namely the FIAF and the International Centre for Alcohol Policies (ICAP), both of which should be classed as business partners according to the UN's own definition.³³ The Global Alcohol Policy Alliance has suggested that ICAP should have no part in 'health related prevention, treatment, research and traffic safety activities, as these tend to be ineffective, self-serving and competitive with the activities of WHO and the public health community'.¹⁶

Whereas all private-sector GRSP members may have expertise related to the safety of their products and an economic interest in fleet safety, it is not clear what expertise they have in injury prevention more generally. It is not obvious why they would have expertise in areas such as land use planning, public transportation or recreational drug use. Their other safety activities are limited to road safety education programmes. For example, according to its website, Toyota has been conducting educational 'traffic safety activities since the 1960s' and 'approaches foreign governments with policy suggestions'.³⁴

The strong GRSP emphasis on road safety education is a concern because, although there is some evidence that behaviour can be changed, there is no evidence that these behaviour changes lead to reductions in road traffic injuries.^{20,35–37} The widespread promotion of educational

programmes on the basis that 'their proponents "know" they will work' has been criticized previously,³⁸ though a decade later the global road safety fund has placed 'sustainable behaviour change' at the top of its list of interventions because 'we know what works'.³⁹ A Cochrane systematic review found no rigorous evaluations of pedestrian safety education programmes in low- and middle-income countries.²⁰ The persistent use of unproven interventions has the potential to mislead others into their use, which may be at the expense of effective interventions such as traffic calming.^{38,40}

Given the serious adverse health and environmental implications of increasing motor vehicle use, it is imperative that the UN and WHO do not allow business interests to dominate public health interests.

Authors' contributions

G.D. designed the study, collected the data, conducted the analysis, designed and composed the figures, interpreted the results and wrote the manuscript. I.R. conceived the study, advised on the analysis, interpreted the results and revised the manuscript. G.D. and I.R. approved the final version of the manuscript and accept accountability for all aspects of the work.

Conflict of interest: None declared.

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