of the incidence of injury can vary substantially depending on one's operational definition of injury. This has important implications for determining priorities, developing indicators for monitoring trends, and undertaking international comparisons. Commonly accepted theoretical and operational definitions of what is an injury are in need of revision. Ideally this should take place in an international context and by consensus. The International Collaborative effort on Injury Statistics represents an excellent international forum through which to progress this.

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Safety

Making sense of safety

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Beyond injury prevention

The concept of ''safety'' can have many different meanings. The *Concise Oxford Dictionary* defines it as ''freedom from danger and risks'', while the *Merriam-Webster Dictionary* describes safety as ''the condition of being safe from undergoing or causing hurt, injury, or loss''. According to etymologist Douglas Harper, the word safe first came into use in the English language around 1280, derived from the Old French *sauf*, which in turn stemmed from the Latin *salvus*, meaning ''uninjured, healthy, safe''. The Latin word is related to the concepts of *salus* (''good health''), *saluber* (''healthful''), and *solidus* (''solid''), all derived from the Proto-Indo-European base word *solwos*, meaning ''whole''.[1] Thus, at its root, the concept of safety revolves around wholeness and health.

Injury prevention researchers have defined safety as ''a state or situation characterised by adequate control of physical, material, or moral threats'', which ''contributes to a perception of being sheltered from danger'' (Andersson and Svanström, as quoted in Welander *et al*, page 12[2]). Safety is commonly viewed through the lens of specific injury domains: for some researchers in the injury prevention field, safety has come to mean the prevention of crime and violence; for others, a reduction in motor vehicle deaths or a feeling of being out of danger rather than being in a positive state of human growth and development.[3]

Due to the multitude of views on the definition of safety, a collaborative effort was launched in 1996 by two World Health Organisation (WHO) Collaborating Centers on Safety Promotion and Injury Prevention, sponsored by the Ministry of Health, Quebec, Canada, and Karolinska Institute, Stockholm, Sweden, to develop international consensus on the conceptual and operational aspects of safety and safety promotion.[2] A document was published in 1998 entitled *Safety and Safety Promotion: Conceptual and Operational Aspects*. The authors of the document stated that a shared definition of safety would result in improved cooperation between researchers and community program workers within the safety promotion discipline, stimulating the development of initiatives that would improve the wellbeing of the population.[3]

TWO DIMENSIONS OF SAFETY

A key point of the WHO's definition of safety is that it has two dimensions: an objective dimension, which can be seen as behavioural and environmental factors measured against *external* criteria, and a subjective dimension, which can be variously defined as the individual's *internal* feelings or perceptions of being safe (which can be aggregated to the macrolevel, to represent the community's subjective safety perception). Hence, for the researchers who contributed to the WHO report, safety is more than merely ''non-injury''.

In the injury prevention domain, safety is rarely, if ever, operationalised in a manner that is consistent with WHO's broad definition of the concept. Indeed, most injury prevention interventions and programs are designed and implemented with the overall objective to reduce injury rates; injury incidence is seen as the primary focus of program interest and success is overwhelmingly defined as a reduction in injuries.[4–6] Thus, safety is typically defined and measured more by its absence than its presence.

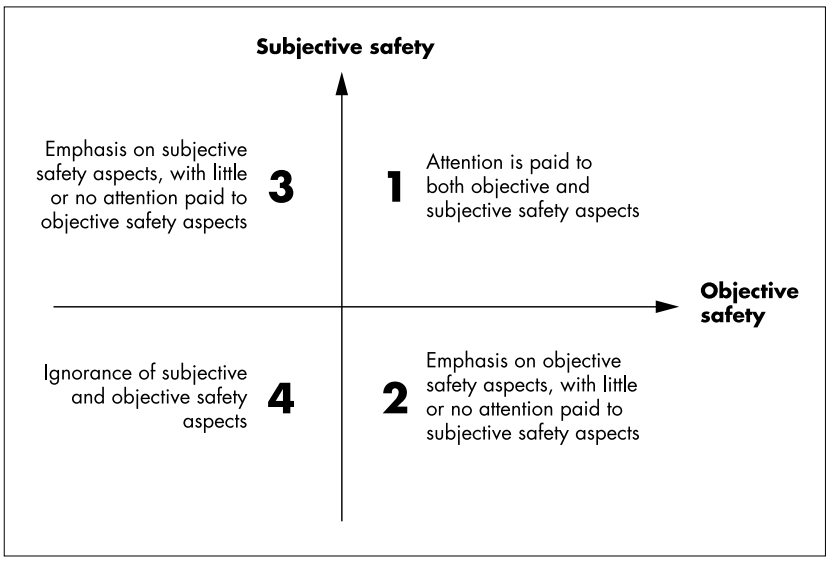

Figure 1 Approaches to defining and operationalising safety concepts.

The reduction of objective injury related measures, such as fewer falls or assaults, does not necessarily lead to a proportional increase in subjective safety, and vice versa.[3] Studies have demonstrated a lack of correlation between subjective and objective safety—for example, between citizens' perceptions of crime versus official crime statistics from police departments,[7] between public anxiety about the wellbeing of children versus the statistical likelihood of their being kidnapped by non-custodial adults,[8] or between risk perceptions versus involvement in accidents in the offshore oil industry.[9]

The approaches that community safety researchers and program personnel use to define and operationalise safety concepts can be illustrated by a figure depicting four quadrants (fig 1). Quadrant 1 is the optimal state, where both subjective and objective aspects of safety are taken into account when designing and implementing injury prevention interventions. Traditional injury prevention programs are ''located'' in quadrant 2. Such programs focus on objective macrolevel parameters (that is, injury rates), with little or no regard of the subjective dimension. Quadrant 3 denotes a situation in which objective surveillance and epidemiological injury data are ignored in favour of reliance on subjective safety assessments. Quadrant 4, meanwhile, is characterised by uninformed guesses regarding subjective and objective safety goals, which result in *ad hoc* safety initiatives.

To date, most community based injury prevention programs can be defined as operating primarily in quadrant 2: they are predominantly based on assessments of objective safety and demonstrate success through injury rate reductions. What is often lacking in these types of programs are data that demonstrate an increase in subjective safety that can be linked to the programs or interventions, as measured within the target population.

The goal of community based safety promotion should be to move intervention and research efforts towards quadrant 1, which requires an increased emphasis on providing services that affect not only the elimination of injuries, but also increase individual and group perceptions of feeling safe. A philosophical migration from the reliance on objective safety aspects toward a more comprehensive approach could be said to signify a shift in perspective from defining and measuring safety by its absence to its presence. Most importantly, the migration from quadrant 2 to quadrant 1 would move research and practice from defining itself as merely ''injury prevention'' to an expanded discipline of ''safety promotion''.

RATIONALE FOR INCREASED EMPHASIS ON SUBJECTIVE SAFETY ASPECTS

The case for a research and program shift among community safety professionals, from a reliance on objective injury reduction interventions (quadrant 2) toward an increased emphasis on perceptions of subjective safety (quadrant 1), rests on a number of arguments.

Subjective safety turns the focus of community injury prevention from the program providers to the program recipients. Subjective safety assessments, by necessity, involve community participation because the programs are responding to the citizens' self defined needs, which increase the chances of achieving community support. Hayes *et al* argue that much of what the population perceives as barriers to their safety are well founded, even though these barriers may not be measurable with commonly used injury surveillance methods.[10] Community participation and influence make programs more effective because services are generated from ''within'' people.[11] The ''principle of participation'' states that large scale behavioural change requires the people heavily affected by a problem to be involved in defining the problem, planning and instituting steps to resolve the problem, and establishing structures to ensure that the desired change is maintained.[12]

Basing program priorities around the community's safety perceptions will also foster an increased community ownership of safety promotion efforts. Target populations who have a sense of responsibility for and control over programs promoting change will continue to support them after the initial organisation effort.[13] Both the ''principle of participation'' and the ''principle of ownership'' follow the same basic premise: change is more likely to be permanent when the people it affects are involved in initiating and promoting it.[14] Increased community participation and ownership does not mean that all injury prevention programs must be grassroots efforts that *only* build from citizens' concerns. We are not calling for a shift away from scientifically based programs to promote safety. Certainly, safety interventions need to be implemented if epidemiological data identify problems of sufficient magnitude to warrant attention.

Focusing on the need to improve an overall sense of safety will help individuals and communities to become more empowered and will make the interventionist more of a collaborator with local communities. Although many community based injury prevention programs are labelled bottom-up or grassroots initiatives, they tend to be expert driven with limited involvement by community members in implementing interventions or evaluating outcomes.[15] The expected rewards of expanded community participation and empowerment include better penetration of communities with more acceptable and culturally relevant messages, and greater sustainability of intervention activities and effects.[16 17]

Assessing subjective safety aspects of target populations will ensure improved

local adaptation of interventions. Studies have demonstrated the importance of tailoring programs to meet the current needs of individuals and communities.[5 18 19] Forde stresses that programs need to be adapted to each community, taking into account its real life, as well as its subjective, judgment about situations affecting it; subjective perceptions cannot be overruled or valued as somehow being worth less than objective data.[7] Purtscher notes that the ''epidemiological situation'' of a community does not necessarily reflect the individuals' or the community's subjective perception of safety.[20] More accurate assessments of the needs and priorities increase the likelihood of implementing relevant and appropriate programs.[21]

The framing of injury problems often requires more attention to social aspects of injury, not just changes in injury rates, if community support is desired. Laflamme questions whether injury occurrence is a suitable indicator for action, because people react to perceived changes in safety, rather than real changes in objective safety.[17] This implies that community perception of problems that result in injuries can be altered, without actually altering the number of injuries they cause. The theory of risk compensation states that individuals' behaviour change in response to changes in *perceived* injury risk, which means that an increased safety level will not automatically result in reduced injury rates.[22] Risk compensation mechanisms underscore the importance of addressing perceived safety, while at the same time pointing to the need for broader constructs of safety.

When a broader view of community safety is enacted, programs will be assessed differently: a project that failed to reduce injury rates, but achieved a higher level of subjective safety, could still be regarded as successful if a yardstick other than injury incidence is employed. Christoffel and Gallagher stress that success should not be defined solely by injury rates,[23] while Klassen *et al* believe that there is a range of outcomes and benefits *other* than injury frequency that could attest to success in injury prevention.[5]

THE WAY AHEAD

Numerous methodologies can be employed in gathering information about subjective safety perceptions, including traditional surveys, panel studies, interviews with key informants and focus groups, convenience samples, ''piggybacking'' on studies being conducted by other organisations, and secondary analysis of existing data sets. The measurement of subjective health has become an important strategy for health promoters and is integral to the planning and evaluation of health promotion.[24 25] We see no reason why it should not be possible to construct reliable, sensitive, and valid subjective safety measurement instruments in the near future.

Once safety measurement data can be captured and analysed, broader based safety promotion programs and research are possible, using a mixture of new data gathering methods as well as old, using subjective measures of safety alongside the objective. It is important to emphasise, however, that a shift of perspective to account for the subjective dimension of safety is not a departure from the traditional scientific approach of defining the problem through quantitative data. Indeed, our central point is that the two perspectives can, and *should*, exist as partners in every safety enhancing effort.

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