Pilot Research Project on
Urban Violence and Health

Determinants and Management
A Study in Jakarta, Karachi and
Conurbation Ruhrgebiet

Editors:
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Preface

Despite having always been recognized as an area of major concern, violence and health has only recently been placed on the agenda of policy makers and researchers. Evidence has shown that the problem of violence and related detrimental health effects tend to be more prevalent than we think, with levels rising to alarming extents in settings where it is not always anticipated. Violence exists, and is significantly related to a wide variety of factors, ranging from macro level policies, to acts of individuals, and is observed in both genders and across all ages. Nevertheless, most commonly affected by far are women, children, and the older age group. Gender inequality is one of the main issues related to violence in general in domestic settings.

Gender-related violence, in the form of rape, use of force and physical coercions, involvement in illegal trades, and others such as "honour" killings, places a heavy toll on the health of an individual in the micro sense, and on society overall in the macro sense, in terms of physical, mental and social health consequences. Statistics show that as much as 50% of the women in some countries (10%-50% of women worldwide) have experienced some form of overt domestic violence by someone close to them, and hundreds of millions of females are forced into illegal acts, which sometimes become the direct or indirect cause of their death. What the world needs to realize is that such practices fall below the very basic standard of humanity and levy heavy and invisible costs, both physical and non-physical, on society.

A series of human rights accords and treaties have been drafted to voice this global concern internationally: the International Conventions on Human Rights (Convention on the Elimination of All Forms of Discrimination Against Women, and Convention on the Rights of the Child), the United Nations Declarations on Human Rights (including the Universal Declaration of Human Rights), and the resolution adopted by the 49th World Health Assembly, "Prevention of Violence: Public Health Priority"
being fundamental to provide the lawful framework and foundation to voice this concern and to continue efforts to work on the prevention of violence and its related health effects.

The WHO Kobe Centre has also identified the important emerging global issue of violence and health, particularly following its recognition as an issue of serious concern to WKC's partner cities, in order to explore and conduct research on it, with a view to enhance human health development.

The Centre held a Global Symposium on Violence and Health from 12 to 15 October 1999, which was attended by almost 300 participants from 36 countries including policy makers, high-level officials, outstanding researchers and experts from governmental, nongovernmental, and international organizations, the private sector, and local communities of Japan. The outcome of the symposium was the Kobe Declaration, which has since been noted as a document of international reputation and fame.

WKC also embarked upon research on this critical issue, to look at its determinants and management, through a pilot study done in Jakarta (Indonesia), Karachi (Pakistan), and Essen / Ruhrgebiet Conurbation (Germany). The outcome of this pilot research project is documented here, as a further contribution of the Centre to the area of violence and health. The WHO Kobe Centre thus stands firm on the development of sustainable national and international partnerships to promote health development and violence prevention worldwide, so as to lead to better health status for all in this century.

Yuji Kawaguchi, M.D., Ph.D.

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Foreword

The WHO Kobe Centre (WKC) serves the objectives of defining and explaining practical strategies that respond to current and future health and welfare issues through three main programmes: Ageing and Health, Health and Welfare, and Cities and Health Programmes (this publication is being presented under the auspices of Cities and Health). Recognizing contemporary issues and challenges that the policy/decision makers face today, the Centre identifies vital topics and concerns of fundamental interest in present-day societies, and conducts explorative research on them.

The topic of Violence and Health was selected for elaboration after its identification as a major issue of concern by officials of partner cities of the WKC. Violence and Health is a part of city health management issues, and is also a concern of the multifaceted welfare systems issues. Accordingly, being in line with the policies and function of WKC, the related projects and profiles of the Violence and Health Programme of the Centre have been interlinked with both Cities and Health, and Health and Welfare Programmes.

Under the focus of Violence and Health, WKC conducted one major Global Symposium in Kobe on 12 to 15 October 1999, which confirmed that violence is a major factor affecting people’s health and quality of life in cities worldwide. Concurrently, WKC also promoted research on violence and health to a greater depth in three selected partner cities: Jakarta (Indonesia), Karachi (Pakistan) and Essen / Ruhrgebiet Conurbation (Germany). The main results of this study are documented in this publication for information, urban health planning, violence prevention, and health promotion.

The two main aspects that were explored in this study were: (1) the determinants of urban violence in Jakarta, Karachi and the Ruhrgebiet, its consequences and their interlinkages, and (2) violence prevention and health development in the aforementioned cities, within the framework of determinants on urban health. The studies devote specific attention to domestic violence as it emerged as one of the main facets of the larger problem of violence and health that policy makers are concerned about, and would like to prevent and manage. As a whole, violence was used in this study as a paradigm to comprehend and illustrate intersectoral health research, while the ultimate goal remained to identify those factors/forces that determine the health of the population in a given urban health complex for a given issue (violence in this case), in order to be able to plan and devise enhanced management strategies to improve the health of the city dwellers.
It is believed that this study would add to the existing knowledge and information on violence and health, particularly with reference to the innovative approach of looking at violence from the point of view of its determinants, and the interlinkages among them. Some general information that exists on the overall topic of violence and health in various writings has also been recapitulated here, and although it is by no means an exhaustive literature review, it provides the reader with a good amount of background reference and context to the topic dealt with in this study.

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Introduction

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1 The goal

There is no doubt that violence has a strong influence on health. Being the victim of violence or an offence profoundly affects health. Moreover, there is no doubt that there is a spatial pattern of violence and health. Comparing nations, regions or individual cities in terms of the magnitude of violence, a statistical correlation between violence and health is established. The World Atlas on Violence published by the WHO Kobe Centre (WKC 1999) compiles rich evidence on such spatial and temporal structures in a global and cross-national perspective.

Health indicators are the ideal gauge to measure violence. In this regard high mortality rates and low mean life expectancy are of particular interest in regions where violence is on its peak. In certain parts of Latin America or Africa, murder and homicide, indeed, are the most frequent causes of death among young men. It is not surprising that in such countries with extraordinarily high murder rates, life expectancy of men is remarkably lower than in those with low crime rates. However, this is not just a simple cause-effect-relationship, as even in countries with relatively low rates of violent crime and murder we find such a correlation. For example, comparing cities in a country like Germany, we find an ecological correlation of murder and homicide with male life expectancy even with annual murder rates of less than ten persons murdered or otherwise violently killed per 100,000 inhabitants. Even though such rates are simply not high enough to have a direct effect upon life expectancy, the cities with the lowest life expectancy likewise reveal the highest violent crime rates.

With a special reference to urban health, the book addresses issues which are of significant relevance to violence research. Previous observations indicate that people with poor health status usually concentrate in areas where violence is routinely practiced or vice versa. Consequently, a great deal of research efforts are to be directed to explore other determinants which may act as a third factor in provoking violence and their ultimate direct or indirect effects on health. In most big cities of the world, we observe a spatial concentration of both violent crime and certain kinds of (communicable and non-communicable) disease and bad individual health
in particularly disadvantaged urban quarters located either near the centre or on the urban fringe. One of the pertinent factors widely documented in urban conglomerations is poverty, often predisposing individuals to commit violence. Poverty often explains the correlation between violence and health, as poor people with a bad health status tend to live in violent neighbourhoods. Their socio-economic limitations do not permit them to make choices in the local housing market and select a violence-free area for themselves. The use of land space also plays a key role here. Violent behaviour may depend on the relation of (publicly accessible) public space to (individually or socially controlled) private space and on the type of housing. There may be other factors such as ethnic composition of a residential population or discrimination of one group by another. Poor medical and social infrastructure and inefficient social control by the state or city police provide another set of explanations. In any case, the web of potential explanations of both violence and health in cities appears rather complex and unstructured. In particular, it seems difficult to identify strategic factors which may be used by the decision makers to disrupt vicious cycles of violence.

In 1997, the WKC has initiated the "Cities and Health"-network as a world wide body to establish cooperation between city administrators and scientific researchers to achieve more clarity on the subject and to identify determinants of urban violence in the world's largest urban agglomerations. The first pilot research phase compiled comparative evidence from Europe and Asia. The book presents the results of this phase. In this introduction, special emphasis will be laid upon the methodological and strategic elements of the project, which has been an exemplary cooperation so far of both interdisciplinary (public health) scientists, city administrators, and politicians.

The objectives of the WKC research project on "Determinants of Urban Health and their Interlinkages" as part of the "Cities and Health"-network have been

"to contribute to improvements of people's health in metropolitan settlements, especially in the developing regions of the world, by supporting the acquisition and utilization of knowledge about interlinkages between health determinants, in order to facilitate activities in a collaborative metropolitan health network aiming at the

- amelioration of living conditions of people,
- implementation of appropriate preventions, and
- qualification of the delivery of health services" (WKC 1998a: 1).
The key words in this early official description of the "raison d'être" of the project are put in *italics*. The objective of the scientific studies (done as application oriented research) and of the discourse among decision makers and researchers in the network should be the *improvement* of people's health in the growing mega-cities of the world. This goal is to be achieved via a stepwise procedure beginning with the improvement and evaluation of the existing scientific knowledge on the determination of health in cities, which in a second step can be transformed into *improved political action* of the cities themselves. As the participants in the "Cities and Health"-network are operating in a web of collaborating cities, there is also interchange of practical experience and information on "best practice" as an additional source of information. Of course, there is also a transfer from practice into theory, as, for example, the experience from bad and ineffective intervention may serve to improve scientific knowledge.

The main motive behind this innovative approach was to advocate every possible effort to closely integrate and facilitate synergism of political intervention with the scientific research for the effective promotion of urban health globally.

2 The strategy

Work started with a conference in August 1997, followed by a set of scientific and "mixed" working group meetings and symposia. It is part of the philosophy of the project that identification of urban health determinants and indicators is a matter of scientific expertise, which, however, has to be evaluated based on practical experience of policy makers. First, an attempt was made to improve the state of knowledge on the "causes" and the "determination" of urban health by a comprehensive review of the available research literature (see Cornelius-Taylor et al. in part I of this volume) and by subsequently developing an empirical indicator base.

An indicator base serves both as a framework to explain urban health status differentials and as an information tool for cities, which also fills the purpose to improve the knowledge which cities have about themselves compared to other cities. This is the approach which also underlies popular "benchmarking" projects.

The availability of empirical data, and the analytic and practical relevance of internationally applicable indicator sets were pilot-tested in three cities, Jakarta in Indonesia, Karachi in Pakistan, and the Ruhr metropolitan area in Germany. The results are documented in part II of this volume.

In terms of research strategy, it is considered reasonable to develop a standard research instrument to be used for the collection of such indica-
tors, providing that actually comparable information is compiled. Doing the pilot studies in three cities of such different countries as Pakistan, Indonesia, and Germany has brought us to the conclusion that variation exists not only in the socio-economic development indicators but also in the quality and source of data. Using an identical instrument for data collection will make sure that, at least, a minimum of comparable data will be collected using the very best locally available sources (ranging from subjective estimates to statistical facts and figures). Such a city survey should be sent out and collected by WKC (using their institutional reputation) with support of local researchers to make sure that cities will indeed take the trouble to collect and deliver the data correctly and regularly.

The above mentioned goals (i.e. the three improvements) are to be achieved via the following (ideal-type) procedural sequence:

1) theoretical analysis of the determinants of urban health and their modes of operation, i.e. the identification of relevant determinants and their individual and combined effects, and their integration into a theoretical impact model by the researchers;

2) operationalization of determinants (i.e. defining indicators to measure them), as well as simplification and economization of the impact model;

3) pilot-testing of the feasibility of indicators and of the explanatory power of the impact model in three pilot cities from countries at different stages of socio-economic development and with different statistical infrastructure;

4) presentation of pilot study results of the researchers to the cities in the network and evaluation of their quality and practical relevance for the cities;

5) practical intervention projects in cities to be evaluated by research teams, and

6) establishment and expansion of a city network with the mega-cities as actors, supported by WKC.

This book reports the results achieved so far in the mega-city health network. The network has started with violence as an "important health-related issue" (IHRI). In spite of the tremendous relevance of violence to urban health, this issue has fairly been neglected by researchers in the past. All six steps listed can also be described as a strategy of initiating a self-steering and mutually beneficial collaboration of cities and researchers initiated by the WKC. Meanwhile the cities and health-project has taken up other health related issues, e.g. environmental health and the public-private-partnership in health care, and has moved further away from vio-
In this respect, the study of violence is considered a positive contribution which has given strong input into the network. The results of the studies done in the project are documented in the chapters of this volume. In the following sections, a few general concepts and ideas forming the background of the studies presented will be discussed.

3 The "philosophy" – concepts and impact model

Urban health

Most if not all of the conventionally used health indicators are mortality or morbidity based measures, and factually have to do with death and disease rather than health. According to the commonly accepted WHO definition, "health" is a state of physical, psychological, and social well-being. There are different well-described ways of measuring an individual's health status (cf. e.g. Jonstone et al. 1998). But what is the health status of a city or of an urban sub-area? Technically speaking, it can be measured as an aggregate feature of the distribution of the individuals' health status indicators in the area under consideration, like a rate (e.g. morbidity rate) or a mean (e.g. average life expectancy). The interdisciplinary working group in the "Cities and Health"-network has consequently agreed upon a definition of "urban health" which stresses the fact that cities and metropolitan areas are characterized by extreme degrees of diversity and often polarization. The dependent variable (for scientific explanation) and the outcome indicator (for urban health development policies) is the degree of inequality in health within a city, measured on a spatial rather than an individual level by health differences between the sub-areas of a city.

The focus of the studies from Karachi, Jakarta, and the Ruhr Area, thus, is on intra-urban health inequalities rather than on differences between cities and rural areas. The different segments of urban populations everywhere tend to live increasingly segregated in quite homogeneous sub-areas and urban quarters. Such intra-urban inequalities and polarizations can be described with the city ward or other urban neighbourhoods as both the unit of analysis as well as the locus of political intervention. The indicator base elaborated throughout the project and the empirical pilot studies presented in this volume, thus, focus on "ecological analyses", i.e. they compare urban neighbourhoods.
Determinants and indicators

As the potential "determinants" of urban health (and, as well, of violence), the urban population, socio-cultural, and economic factors, environmental and factors related to infrastructure, the quality of the health system, and characteristics of the political system (all measured on the city and/or the city ward level) were identified. All these are hypothesized as having an impact, individually and in interaction with each other, on "urban health". Determinants are measured by "indicators". Determinants and indicators are characteristics of the city and of city wards. The proportion of a local population below a defined poverty line, for example, would be an indicator measuring "poverty" as a determinant of urban health.

In order to better understand these phenomena, more in-depth studies and concerted efforts (such as comparative case studies) are required. An additional challenge, however, is that hypotheses and explanations should not only be of scientific, but also of practical preventive and interventive relevance. Basically, there are two questions, one being the scientific problem of comprehensive explanation, the other being the one of practical relevance and of communicating theoretical explanations to people doing the practical work in the cities. An important concept in that respect is the "important health-related issue" (IHRI).

The IHRI is the "missing link" between the outcome health-status indicators and the determinants as inputs. It also links intervention and preventive action to health status, as neither the determinants nor the health-status measure may be subject to direct political intervention. Causal explanation is not necessarily the basis of practical intervention or prevention. In a certain urban situation where it may be unrealistic to effectively fight poverty (as a health determinant), it could make sense to concentrate on the IHRI (such as violence or the quality of medical services) to improve public health.

Based on cause-effect relationships, scientific explanations with complex chains of causation as well as complicated models of intervention should be modified to more shorter and simpler forms. In policy application oriented research it does not make sense to build a comprehensive overall model including all possible determinants and all aspects of urban health (measured by a variety of health indicators) containing all possible individual and combined cause-effect relationships. As WKC states, "in more recent times, the already too many factors influencing health (the input factors) have been shown to be interrelated to each other, having aggravating or inhibitory influences on each other, thus creating innumerable relationships. This has made it almost impossible to circumscribe and illus-
trate health in its whole domain" (WKC 1998b: 18) It is therefore much more feasible to concentrate on certain (practical) IHRIs. Such health-related issues are syndromes of behavioural, systemic or environmental factors affecting the health status of a population in a given area.

Poverty or, for example, social exclusion, abuse of intoxicating substances (smoking, alcohol, drugs), violence (street violence and domestic violence), air pollution or other environmental hazards, in-migration, limited access to primary health care, or discrimination or exclusion of segments of the urban population by politico-legal actions, are among the crucial IHRIs. IHRIs can be categorized in the same way as determinants (demographic, socio-cultural, economic etc.), and each determinant of urban health can, in a specific practical and research interest, also be regarded as an IHRI

The selection of IHRIs for further scientific investigation and practical interventions is something that should not be left to the scientific researchers alone. This is the point where the "academic bias" can be avoided by bringing in the cities. IHRIs are the intervention fields of local health development and can be implemented massively in further research and practical interventions.

**Figure 1**

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<th>DETERMINANTS</th>
<th>&quot;IHRI&quot;</th>
<th>URBAN HEALTH</th>
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<tr>
<td>Demographic</td>
<td>Violence</td>
<td>Health status</td>
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<tr>
<td>Economic</td>
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<td>Socio-cultural</td>
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<td>Physical environment</td>
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<td>Polatio-legal</td>
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<td>Health system</td>
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Source: developed by WKC.

Each IHRI is related to a specific subset of health status indicators (figure 1). Not all of these relationships (i.e. the health impact of IHRIs) are sufficiently clear yet, the same holds for the causation of some IHRIs.
Introducing the IHRI as a "missing link" between the determinants on one and the health status outcome indicators on the other side offers interesting perspectives of interdisciplinary cooperation of scientists from various disciplines other than epidemiology, like demography, sociology, psychology, economics or political science as well as from the natural, environmental, and life sciences. The study specifically benefits from the extensive experiences and interdisciplinary vision of various authors who share a common goal here.

4 The example: "violence" as an IHRI

For some IHRIs, like alcohol or drug abuse, the processes and structures of "causation" as well as their health impact are well known and documented in the literature. For others these relations are not so clear. The "Cities and Health"-network therefore decided to first analyse violence as a somewhat "under-researched" IHRI in an exemplary manner.

The impacts of violence on health are widely accepted; they range from high mortality to indirect effects on psychosocial health both in directly and non-directly involved persons. However, particularly in the European (German) pilot study (see Strohmeier in this volume), it was evident that the political system does not treat violence as a health issue but rather as an affair of public order or social control, and is quite unconscious in particular of the indirect health impacts of violence. What does it mean for a person, in particular if he or she belongs to one of the vulnerable groups, like single living old women, children or lone mothers, to live in a violent neighbourhood?

Initially, a core set of determinants of urban health and their respective indicators (operational definitions) were defined before the individual and joint impact (i.e. the "interlinkages") of these determinants on urban violence as the "important health-related issue" selected for the initial research phase were studied. Violence was studied in two aspects, as public, street violence, and as private, domestic violence. The difference is marked by the spatial setting where it occurs. In the cases of Germany and Indonesia, violent crime was studied as public violence, in the case of Pakistan, due to missing data, it was road accidents as a form of non-intentional violence.

Empirical tests of the applicability and appropriateness of existing theoretical hypotheses derived from a review of the existing research literature were performed and new (hypothetical) explanations from empirical analyses of the inter-urban and intra-urban variations of violence were generated.
The first studies on public physical violence occurring in the non-private spheres of daily life, i.e. either in the streets and in public places in the form of criminal violence (street crime) or in the form of unintended accidental violence (road traffic accidents) considered victims as well as perpetrators. Excluded from the studies presented was organized crime. Research into domestic or intra-family violence was not conducted in the first round of studies, because it did not necessarily appear a specifically urban issue. The studies on domestic violence done in the second part of the project are international comparisons rather than inter-city comparisons.

Research questions

The following (research and practical) questions were asked:
1) What is the incidence and prevalence of violence as an important issue of urban health?
2) Which determinants of violence and which interlinkages can be identified?
3) What is the public health impact of violence in an urban neighbourhood (given the fourth WHO definition of health) with a special emphasis on particularly "vulnerable groups"?
4) Which interventive and preventive action is taken in the city? Which strategies can be suggested?
5) How effective is such action?

5 Research design

For the scientific researchers we would finally like to summarize the central features of the research design developed in the course of the study presented here. There was a hierarchy of research procedures on three levels (of aggregation) which were followed stepwise from levels 1 to 3.

5.1 Multi-level and multiple methods research

Level-1

So called city profiles were established for each of the participating mega-cities as a first information according to the pre-defined core indicator set. This core indicator set was to make sure that there is a data base covering substantial and comparable information on all participating cities. The collection of additional data was kept optional. The participating researchers were asked to use the best available and most recent data sources
which led to a variation ranging from sophisticated data banks right "on tap" of a computerized on-line system to estimates and qualitative judgments directly obtained from city planners or health officials. The sources of the data had to be described giving details on their reliability and validity.

The city profiles served as descriptive background information and should as well generate suitable indicator variables for the statistical analyses of interlinkages between proposed determinants. In a later stage, given a substantial degree of standardization of determinants and indicators, "inter-city" comparisons (for example introducing bench-marking procedures) may be applicable.

Level-2

The same set of information (eventually including some more diversified and specific indicators) was collected at the level of neighbourhoods and city districts. This allowed for bi- and multivariate ecological analysis of the causation of the IHRI selected to identify the most relevant and potentially causal factors and their interlinkages.

The notion of "causality" on this level, however, does not imply causal explanations of individual behaviour. Ecological correlations rather identify "interlinkages" as typical configurations of demographic, social, cultural or environmental characteristics of urban neighbourhoods often coinciding with the IHRI selected (e.g. the degree and kind of violence). The use of ecological analysis on the sub-district and neighbourhood level is identification and classification of problem areas rather than prediction and explanation of individual behaviour.

Level-3

In a sub-sample of "interesting" small areas of the participating cities (selected on the basis of level-2 analyses), further in-depth studies in respect of questions 3-5 should be executed including the collection of primary data on individuals and households. The nature of primary data to be collected will be described in the following section.

The methodological principle is one of multi-level analysis of individual and ecological data at different levels of aggregation. Individual data collection (e.g. via large population surveys) is an expensive research tool. It should be used only for those questions which are not answered by the aggregate data analysis. Another cost-efficient part of the empirical strategy was to make as much use as possible of secondary data analysis. i.e. to
avoid primary data collection and do as much analysis of existing data (surveys, statistics, etc.) as possible.

5.2 Potential data sources

The following data sources were used according to suitability:

- **Secondary routine data** (e.g. demographic statistics, in service documentation, population registers, police statistics, public health information systems, etc.);

- **rapid assessment techniques** (expert interviews, focus groups etc.);

- **individual data** (only in level-3-studies: surveys, epidemiological studies, non-reactive techniques, such as participant and non-participant observation, narrative interviewing, group discussions).

As far as individual data are concerned, every effort should be made to collect not only data from representative (random) samples but spatially referenced data, e.g. from samples of "typical" spatial units (neighbourhoods). The specific characteristics of urban neighbourhoods and of certain population groups can be assessed by means of quantitative statistical analyses of level-2 ecological data.

5.3 Analytic methodology

The empirical chapters of this book present a variety of statistical research techniques, ranging from descriptive illustrations and cross-tabulations, via correlation techniques and multiple regression to discriminant analysis. The study also contains an extensive literature review to depict the real impact of the issue. The following steps were chosen for the statistical analysis in the study:

- descriptive uni-variate analysis of determinants and indicators (means, medians, frequency distributions) using graphs and thematic mapping, including GIS;

- cross-sectional, longitudinal (time series) and inter-group (e.g. according to age and sex) analysis;

- bi-variate analysis (correlation coefficients, cross-tabulation, scattergrams).

The results and conclusions drawn from the study can be easily transferred into the process of decision making, planning and policy making. Multivariate modelling and analysis raise certain problems in that respect. Multivariate techniques like multiple (logistic and OLS) regression, path
analysis, factor analysis or discriminant analysis are standard tools of causal statistical research. Nevertheless, their results should meet but one minimum requirement: A prerequisite of all statistical methodologies applied is that their results will have to be communicable to and intelligible by politicians and administrators. On the other hand it should be kept in mind that in terms of the logic of scientific enquiry, "causality" never is a matter of applying sophisticated statistical techniques, but of good theory.

Separate analyses are to be performed for each mega-city, and subsequently subjected to comparative interpretation within and between the mega-cities (a synopsis could be done in the framework of scientific workshops). It is necessary to agree upon a similar (and comparable) format structure for each research report and upon a standard set of tables, respectively table headings to appear in all individual city reports. It was most unlikely that in the pilot research phase standardization of data was already good enough for meta-analytic techniques. However, attempts should still be made to arrive at a comparative synoptic interpretation of the findings from the individual mega-cities.

6. Contributors and contents

6.1 Urbanization, violence, and health: general overview

Before the WKC pilot project reports are presented, Birgit Cornelius-Taylor, Yvonne Suzy Handajani, Susanne Jordan, Götz Köhler, Rüdiger Korff, Ulrich Laaser, Asma Fozia Qureshi, Fauziah Rabbani, Narjis Rizvi, and Charles Surjadi give an overview of the international scientific literature on urbanization and health, including a review of some studies on violence as an urban health-related issue. As stated above, this literature review was compiled in the preparatory phase of the WKC pilot project aiming at gaining insight into the broad variety of potential determinants of urban health. Birgit Cornelius-Taylor then summarizes the scientific knowledge about urban violence and health outcomes in a systematic and more detailed way. Her contribution impressively shows that urban violence and its health-related effects are still a clearly neglected subject in public health research. In a more theoretical study, Susanne Jordan additionally presents her comprehensive model on the different levels of etiological factors conducive to adolescent violence in cities. Health impacts of violent behaviour and proposals for preventive initiatives are likewise discussed.
6.2 The WKC pilot project

As outlined in the previous sections, the WKC pilot project on "Determinants of Urban Health and their Interlinkages" consisted of two parts. First, researchers from Jakarta (Indonesia), Karachi (Pakistan), and the Ruhr Area Conurbation (Germany) were asked to identify and investigate determinants and indicators of urban violence, i.e. violent acts committed in public. This first research phase lasted from July to September 1998. The aim was to assess the feasibility and applicability of the conceptualized research strategy with respect to "violence" as an "IHRI". In the second part (March to October 1999), the same participants additionally focused on domestic violence, its various forms, prevalence, and related interventive strategies implemented in their cities and countries. In the following sections, the approaches employed are briefly summarized.

6.2.1 Urban violence

In their study on "Urban Violence in Jakarta, Indonesia", Charles Surjadi and Yvonne Suzy Handajani focus on the prevalence and determinants of crime victimization experiences in the Indonesian capital. The authors had access to the large National Socio-economic Survey 1997, consisting of three sub-surveys (core data, social welfare and cultural survey, and crime survey) with sample sizes ranging from 770 to 6,100 respondents. Bi- and multivariate analyses were used to investigate associations between victimization experiences and e.g. a number of socio-economic and socio-demographic characteristics, housing conditions, social environment and community integration, as well as the place of crime.

As reliable data on criminal offences occurring in public were absolutely not available, Asma Fozia Qureshi and Zaffar Tahir from the Aga Khan University in Karachi decided to address road traffic injuries in the Pakistani mega-city instead. The authors conducted expert interviews with the Deputy Inspector General Traffic and Highways, and analysed data on road traffic accidents for the years 1996-1998, provided by the Karachi Traffic Department. Their retrospective descriptive study shows that motor vehicle crashes are still an underestimated and neglected form of "unintentional violence", strongly contributing to morbidity and mortality.

In contrast to Surjadi and Handajani's study on urban violence in Jakarta, focusing on victimization experiences, Klaus Peter Strohmeier used data on crime and violence relating to registered offences. His study "Determinants of Urban Violence in the Ruhr" presents an ecological approach at explaining spatial differences in crime rates in the largest urban agglom-
eration in Germany (which is likewise one of Europe's largest). Bi- and multivariate analyses of official police statistics and a set of social, demographic, economic, infra-structural and political variables were conducted in order to identify determinants of violent crime. The author furthermore focuses on explaining factors and the spatial distribution of robbery in the city of Essen, the administrative centre of the Ruhr metropolitan area. These data were drawn from police records, the census, and various city registers.

6.2.2 Domestic violence

In his second contribution, Charles Surjadi addresses gender-based (domestic) violence in Indonesia. The author characterizes NGOs supporting victims of violence, and the government's strategies to prevent violence and crime as part of the Indonesian public health programme. Moreover, data on gender-based violence, its forms, the type of support provided by NGOs, and on socio-demographic characteristics of both victims and offenders are presented. All data were provided by the NGOs described and relate to the offences and victims registered by these organizations.

For the second study from Karachi, Asma Fozia Qureshi, Fauziah Rabbani, and Narjis Rizvi comprehensively investigated determinants and forms of domestic violence, its impacts on the victims' psycho-social and physical health, and the victims' coping mechanisms. Like Charles Surjadi, the authors focused on adult victims of domestic violence. For that purpose, in-depth interviews with more than 100 women reporting experiences of domestic violent acts were conducted, supplemented with key informant interviews with opinion leaders and experts involved with violence prevention issues, and focus group discussions with women and men from major ethnic groups resident in Pakistan.

Götz Köhler's report finally deals with the prevalence and determinants of domestic violence in Germany, including a brief outlook on strategies and major deficits of the German system of intervention and prevention. In contrast however to Surjadi's and Qureshi's and her colleagues' studies on this issue, the author addresses parent-to-child violence. After a summary of some of the most important research studies on parental violence, determinants and risk factors are discussed. As spatially disaggregated data on the prevalence of domestic violence in the Ruhr Area were not available, the author decided to conduct secondary analyses of a large national representative survey.
Conclusions and recommendations are finally summarized by Ulrich Laaser, outlining what should be the next steps in research and policy development.

References

WKC (WHO Kobe Centre) (1998a): Longterm research plan for metropoli-
I.

Urbanization, Violence, and Health: General and Theoretical Overview
Urbanization and Public Health –
A Review of the Scientific Literature

Birgit Cornelius-Taylor, Yvonne Suzy Handajani,
Susanne Jordan, Götz Köhler, Rüdiger Korff,
Ulrich Laaser, Asma Fozia Qureshi, Fauziah Rabbani,
Narjis Rizvi, Charles Surjadi

1 Introduction – the urbanization of the world

One of the main characteristics of the new century will be the urbanization of the planet. Following estimations of the United Nations (1995; 1995a), in the year 2025 two thirds of the human population of approximately 8.4 billion will live in cities. Urbanization may be defined as the rise of urbanized countries, in which close to 90% of the population live in cities of different sizes. Today western Europe resembles the features of such an urbanized region consisting of many cities, however, without so-called mega-cities. Such metropolises, defined as urban locations with populations exceeding ten million, will be on the rise especially in the developing world. Following estimates, in 2015 approximately 26 cities will have the status of a mega-city (table 1).

While until the sixties the largest cities of the world were located in the developed countries (e.g. London, New York, Tokyo, Paris), the mega-cities of the future will be in the developing world. In fact, cities which were small only a decade ago like Dhaka, Lagos or Seoul have now reached mega-city status.

However, it seems to be exaggerated to talk about "exploding" city populations and urbanization "out of control" (Harpham 1997 in a critical sense) in view of these trends. Urbanization processes are highly ambivalent. As the Director-General of the World Health Organisation pointed out to the 44th World Health Assembly in 1991, "urbanization is not necessarily bad itself. It becomes a problem when the rate of growth of the urban population exceeds the capacity of the infrastructure to absorb and support it" (Seager 1995: 65-66). In the context of modernization theories, urbanization is understood as a condition or an effect of modernization and industrialization (Dwyer 1972). Moreover, it certainly alleviates several problems, e.g. overpopulation, land shortages etc of the rural areas. On the other hand, many approaches point at the costs in terms of increased pov-
poverty expressed in the rise of slum and squatter areas, and unequal distribution of resources which tend to be concentrated in the metropolitan areas (Hoselitz 1972). As the World Bank (1992) estimates, more than 500 million people in the cities will live in poverty. Among other problems, the overburdening of the urban infrastructure and the difficulties to supply the mega-cities with necessary resources such as air and water are worth mentioning. In general, life in the cities is associated with several factors which one way or another will have deleterious effects on health (Phillips 1993; Horton 1996).

Table 1: Cities with more than 10 million inhabitants in 2015

<table>
<thead>
<tr>
<th>City</th>
<th>1950 (millions)</th>
<th>2015 (millions)</th>
<th>Growth rate (1950=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tokyo</td>
<td>6.7</td>
<td>28.9</td>
<td>4.31</td>
</tr>
<tr>
<td>New York</td>
<td>12.3</td>
<td>17.6</td>
<td>1.43</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>4.0</td>
<td>14.2</td>
<td>3.55</td>
</tr>
<tr>
<td>Mexico City</td>
<td>3.1</td>
<td>20.3</td>
<td>6.55</td>
</tr>
<tr>
<td>São Paulo</td>
<td>2.4</td>
<td>20.3</td>
<td>8.46</td>
</tr>
<tr>
<td>Shanghai</td>
<td>5.3</td>
<td>18.0</td>
<td>3.40</td>
</tr>
<tr>
<td>Calcutta</td>
<td>4.5</td>
<td>17.3</td>
<td>3.84</td>
</tr>
<tr>
<td>Bombay</td>
<td>2.9</td>
<td>26.2</td>
<td>9.03</td>
</tr>
<tr>
<td>Beijing</td>
<td>3.9</td>
<td>15.6</td>
<td>4.00</td>
</tr>
<tr>
<td>Jakarta</td>
<td>2.0</td>
<td>13.9</td>
<td>6.95</td>
</tr>
<tr>
<td>Delhi</td>
<td>1.4</td>
<td>16.9</td>
<td>12.07</td>
</tr>
<tr>
<td>Buenos Aires</td>
<td>5.0</td>
<td>13.9</td>
<td>2.78</td>
</tr>
<tr>
<td>Lagos</td>
<td>0.3</td>
<td>24.6</td>
<td>82.00</td>
</tr>
<tr>
<td>Tianjin</td>
<td>2.4</td>
<td>13.5</td>
<td>5.63</td>
</tr>
<tr>
<td>Seoul</td>
<td>1.0</td>
<td>13.0</td>
<td>13.00</td>
</tr>
<tr>
<td>Rio de Janeiro</td>
<td>2.9</td>
<td>11.9</td>
<td>4.10</td>
</tr>
<tr>
<td>Dhaka</td>
<td>0.4</td>
<td>19.5</td>
<td>48.75</td>
</tr>
<tr>
<td>Cairo</td>
<td>2.4</td>
<td>14.4</td>
<td>6.00</td>
</tr>
<tr>
<td>Manila</td>
<td>1.5</td>
<td>14.7</td>
<td>9.80</td>
</tr>
<tr>
<td>Karachi</td>
<td>1.0</td>
<td>19.4</td>
<td>19.40</td>
</tr>
</tbody>
</table>


As the populations move towards the cities, the question of urban health and health support systems especially for lower income population groups gains importance. If one speaks of increasing life expectancy, halt-
ing epidemics and improving health status of urban dwellers, concerted efforts are needed (Hardoy et al. 1992). This can be achieved hardly by the public sector alone, as particularly developing countries lack financial resources. Thus an approach is needed in which public institutions, the private sector, and local organizations cooperate on the different levels of health promotion and disease prevention, as it has been emphasized in the Habitat agenda.

With regard to health issues, the negative view of the city, especially the large cities and metropolises, actually predominates. A densely populated urban environment obviously becomes a major health hazard itself e.g. due to air and water pollution, traffic and accidents (Ezcurra and Mazari-Hiriart 1996; UNEP and WHO 1994; Hardoy et al. 1992). In Mexico City, accidents rank second among the main causes of death, followed by problems related to air and water pollution, like pneumonia, diarrhea, and enteritis (Ezcurra and Mazari-Hiriart 1996).

In some cities, increasing economic and social development was accompanied by the implementation of monitoring systems and emission control programmes, leading to improved air quality. However, so far only the mega-cities of the developed countries, such as Los Angeles, London, and Paris, have sufficient and good facilities for monitoring and controlling air emissions (UNEP and WHO 1994). With respect to Mexico City, Ezcurra and Mazari-Hiriart (1996: 31) conclude: "Growing conflicts over water use, air pollution, waste disposal, environmentally related health problems, and natural resource depletion are all problems shared by most Third World megalopolises. Mexico City is thus a laboratory where many of the processes that drive population, natural resource, and land use changes in the less-developed nations are being tested. It provides both fascinating and terrible insights into what the future may hold for many of the megalopolises of Latin America and the Third World."

However, poverty, environmental problems, and their hazards are not the only emerging problems in the context of ongoing urbanization. In recent years, an extensive research has been conducted, dealing with numerous health issues ranging from infant and child mortality (e.g. Kuate Debo 1996; Bachmann et al. 1996; Sastry 1997), respiratory illness (Løvik et al. 1996; SIDRIA 1997), cancer incidence (Schouten et al. 1996), cardiovascular diseases and hypertension (Barnett et al. 1996. Mufundu et al. 1994; Kaufman et al. 1996) to mental disorders and deviant behaviour (Mueller 1981; Shepherd 1984; Cheng 1989; Gillis et al. 1991; Sijuwade 1995; Varma et al. 1997; Rahim and Cederblad 1986), to mention but a few. Despite such research efforts, the ultimate effects of many of the complex and intertwined factors of urbanization on human health still remain poorly un-
derstood (Løvik et al. 1996; Tanner and Harpham 1995; Stephens 1995). In the following sections, an overview of studies on urbanization and public health will be given in order to categorize them according to methodological approaches as well as the health-related determinants that were addressed.

2 The difficulty of finding a common terminology: an overview of studies

2.1 Studies on health in urban areas or studies on urban health?

The difficulty of defining a "city" or an "urban area" becomes obvious in many studies on urban health. Although researchers often refer to "urban areas" or "cities", it is rarely outlined why an urban environment is of specific quality. Roughly speaking, many studies can be categorized into five main types based on the conceptualization of "urban" and "city".

2.1.1 Studies taking place in cities

In these studies urban is used in a rather direct approach. "City" is referred to as areas within administrative borders or the study takes place in areas self-evidently regarded as "urban". Examples are studies dealing with Mexico City, Karachi or other metropolises. Many of them focus on environmental problems and certain diseases.²

2.1.2 Studies comparing urban and rural groups

Another approach to pointing at specific features of urbanization represents studies comparing urban with rural populations, the latter often being included as a control group. However, apart from differences in definitions (what is "urban" and what "rural"?), it still remains unclear what criteria the selection of both groups is based on. "Urban" and "rural" groups are usually different in terms of social status, employment, life styles, ethnicity etc. (see e.g. Gutkind 1969). Furthermore, urban-rural comparisons easily lead to the so-called ecological fallacy, which means that certain spatial factors are used to explain social phenomena.

Verheij (1996) can be cited as an exception. The author uses the term "urbanicity" to indicate the extent to which a place is urban or rural. However, "urbanicity" only refers to the degree of nationwide urbanization.
From this point of view, urbanicity is high if the overall level of urbanization is high, like in western European countries. This approach does not provide qualitative criteria for the term "urban"; rather, it simply indicates that urban-rural-comparisons are not very meaningful for public health research. However, it is questionable whether this also applies to developing countries with low degrees of urbanicity.\(^3\)

### 2.1.3 Studies dealing with migration

Several studies focus on rural-urban migration and its implications for health. Migration is understood as change of a physical as well as social environment which is often associated with stress. Related to such studies is research into processes of the migrants' adaptation to the urban context. The main problem inherent in these studies is that either the focus is on particular groups which usually are not representative of all migrants, or that migration is defined in a rather simple way as "change of place of residence". In such studies, it is usually unclear what social and ethnic groups the migrants belong to.\(^4\)

### 2.1.4 Studies dealing with particular groups within a city

Other studies focus on selected (ethnic) groups living under specific circumstances, e.g. different forms of deprivation. Unlike research attempting to gather generalizable and representative findings, these studies point at the specific conditions of the respective groups analysed. While most of the older studies focused on ethnic groups, recent research increasingly deals with certain life styles observable in urban areas.\(^5\)

### 2.1.5 Studies dealing with urban health systems and development

These studies aim at providing basic data for the development of health systems. Their main question is how people and certain target groups use health systems and how these can be improved to provide better services. Most research of this category likewise deals with certain (ethnic) population sub-groups. Some general papers on urbanization and health, as well as policy outlines can be regarded as belonging to this group of studies, too (see e.g. Velden et al. 1995. Stephens 1995; Mutalikar 1995; Werna and Harpham 1995).
2.2 Different methodologies

There are certain issues and variables which are more suitable to a quantitative process of data collection and analysis than others. Especially individual factors can be investigated in a quantitative way, as the usual quantitative methods (questionnaire etc.) take the individual as unit of analysis. This allows of analysing correlations between health issues, individual behaviour patterns and environmental aspects. Features of the physical, biological and chemical environment can be analysed quite easily in a quantitative manner as well. Thus it is not astonishing that most health research is quantitative. However, there is also a number of qualitative studies.

2.2.1 Quantitative studies

The majority of the studies is based on quantitative data e.g. in the form of census data from the government and the local administration and municipality or of special surveys. Except for data on the physical environment, the unit of analysis is the individual either in general or with specified characteristics as migrant, urban dweller, member of an ethnic group etc. Information about the physical environment are for the most part drawn from installed measurement-stations. These data are then correlated with data on the occurrence of diseases in selected regions. This gives a form of spatial "health ecology" by pointing at high risk and lower risk areas within the city.

However, as this approach is prone to ecological fallacies, analyses should be made very carefully. Verheij (1996) distinguishes two hypotheses for taking spatial differences into account. Following a "drift hypothesis", a spatial concentration of diseases results from selection processes. Ill or susceptible people move to a specific environment or remain there. In the drift hypothesis, environmental factors are seen as independent variables and accordingly, spatial differences in disease patterns result from given spatial/environmental conditions and the movement of people. In contrast, the "breeder hypothesis" focuses on behaviour. People expose themselves either to environmental factors like air pollution etc., or they are prone to risky health behaviour. Verheij (1996) concludes that neither behaviour, nor the environment alone can be used as an explanation for health differentials. Instead, a closer examination of the interactions between both is needed.
2.2.2 Qualitative studies

In only very few studies, a qualitative approach is used. Their main intention is to point at particular issues and problems and to analyse certain phenomena by in-depth methods, and not to provide representative findings. Especially the study on "Alma" by Blanche (1996) has to be mentioned here. In these studies, cultural issues play a much more important role than in quantitative surveys. Some of the most important approaches used in qualitative research are the following:

1) Focus interviews with key informants to get an initial understanding of the issue concerned. Key informants are e.g. experts working in a health care project, community leaders, members of NGOs etc.

2) Focus group interviews with members of the target group to develop further aspects and questions.

3) Group

4) Meetings with other members of the community who do not belong to the target group. Quite often the target group has its own understanding of the issue concerned, which might differ from others. Such interviews are therefore crucial to find out specific characteristics of the target group.

5) Group discussions with target groups and interviews with individuals.

6) An important element of qualitative studies are regular meetings in which the findings, together with target groups and key informants, are presented and discussed. Results can then be modified if they are based on misunderstandings.

7) Other commonly applied anthropological methods like observation, narrative interviews etc.

2.2.3 Mixed approaches

Mixed approaches are particularly used in the form of rapid assessment techniques for development-oriented studies. First, through group discussions, general information is gathered and disseminated among the participants of a project. Later on, detailed interviews are made with the participants, supplemented with further observations.
2.3 Different focuses of analysis

Another differentiation of studies on urbanization and health can be made according to whether health-related environmental or individual (behavioural) factors are the focus of analysis. Research into developmental issues form an additional category.

The environment can be subdivided into physical, biological, chemical, geographic, and social. While health implications of the biological, chemical and physical environment are already well-documented, factors of the social environment still appear fairly neglected in urban health research.

2.3.1 Studies dealing with the physical environment

In many studies, health effects of air and water pollution in large cities are comprehensively investigated. One leading question is when urbanization, generally regarded as advancement rather than an indicator of deteriorating living conditions, becomes unsustainable. This threshold has already been crossed in many mega-cities, e.g. in Mexico City. Located in a valley with low ventilation, air pollution may reach levels posing serious threats on human health. Other large cities face similar problems.

Water consumption, availability and pollution is another important health-related issue already well-documented in the scientific literature. The growth of cities and ground sealing increasingly reduces the amount of ground water. Consequently, water has to be transported into urban areas from far places. Water supply may then become a challenging process particularly in cities located within a valley, a desert or close to the sea. Moreover, the ground water is often contaminated through waste water disposal, industrial waste release, and air pollutants.

Ground water overexploitation furthermore may lead to the sinking of certain areas within a city. This in turn increases the danger of flooding, especially in low-lying cities close to the sea like Bangkok.

Water and air pollution also affects the hinterland, often providing a large amount of food consumed within the city, e.g. vegetables, meat, fish or stable foods (rice, maize, potatoes etc.). Due to air and water pollution, crops are already contaminated either through bacteria or poison. The pollution of the city spreads into the hinterland, thereby reducing sustainability even further. Increasingly, basic resources like water and food have to be brought from far distances (cf. UNEP and WHO 1994; Mage et al. 1996; Ezcurra and Mazari-Hiriart 1996).
2.3.2 Studies dealing with the social environment

The social environment poses less obvious health problems. Stress, low community integration, and social isolation are discussed as factors resulting in mental problems, e.g. depressions and anxiety. On the other hand, the social environment might positively influence the health status, e.g. through integration in social support networks (cf. Lillie-Blanton and LaVeist 1996; Callaghan and Morrissey 1993; Harpham 1994).

2.3.3 Studies dealing with health-related behaviour and developmental issues

Apart from environmental problems, also health-related individual behaviour is often addressed in public health research. Drinking, smoking and substance abuse in the context of urbanization, child care issues, the use of medical services, individual prevention and immunization are but few examples. Often, such topics are discussed in connection with developmental issues such as improvement of health consciousness and extension of support systems (see e.g. Verheij 1996, Kettel 1996; Ojanuga and Gilbert 1992; Solomons and Gross 1995; Levine and Levine 1994; Rogers et al. 1997).

3 Results – an overview of determinants

3.1 Social determinants

The problems of ongoing environmental destruction emerging from urbanization could be regarded as rather global or city-wide factors potentially affecting the health status of the whole population. Both research into water contamination and the results of worldwide air quality monitoring provide evidence that widespread environmental pollution entails several risk factors for human health.

Stephens et al. (1995) however point to some shortcomings of this common approach to measuring health effects of urban environments: Assessment of ambient air quality is often confined to the examination of pollutant levels against established, international guidelines and standards, omitting special features of local socio-environmental conditions and lifestyles that likewise influence the relative impacts of air pollution on health. This kind of research thus works on a "risk analysis' basis, where only environmental data is monitored and public health risk is extrapolated from international data and standards" (Stephens et al. 1995: 104), whereas air
pollution and local health data linkage is scarcely a subject of current research.

Health impacts of the micro-level, i.e. social, socio-economic and cultural factors of deprivation are often excluded from this point of view. It is therefore crucial to public health research to collect more comprehensive data on urban factors affecting health, and to adequate public health care planning to focus also on the micro-level of intra-urban differentials of socio-economic living conditions, particularly pertaining to the problem of urban poverty in developing countries (cf. Tanner and Harpham 1995a; Stephens 1995; Phillips 1993; Talib and Agus 1992; Stephens and Harpham 1992; Harpham and Stephens 1992; Harpham 1986). As Stephens (1995: 110) points out, in public health terms it even seems to be "that the scale of the impact of 'invisible' problems of urban poverty [...] outweighs that of the macro-problems".

In the following sections, intra-urban differentials in socio-economic living conditions are addressed in greater detail. Special emphasis is laid on urban poverty and poverty-related social factors, and the reasons for growing health disparities between urban population groups. Among other determinants exerting influence on health, violence is addressed as an important, but rather "underresearched" issue in separate sections. Moreover, a brief overview of cultural-anthropological perspectives on health is also included.

### 3.1.1 Socio-economic determinants, poverty, and violence

Estimations suggest that between 30% and 70% of the "Third World's" urban populations are living in conditions of extreme material and social deprivation (Harpham and Stephens 1992; Harpham 1986; Wang'Ombe 1995; Massey 1996; Bronger 1996; Stephens 1995; Phillips 1993), characterized by insufficient provision of infrastructural services including water, sanitation, and waste disposal, as well as poor housing conditions and overcrowding, inadequate access to health care services, severe pollution, stress and alienation (Talib and Agus 1992; Harpham 1986; Mutatkar 1995; Wang'Ombe 1995; Tanner and Harpham 1995).

However, the "urbanization of poverty" (Massey 1996) and intra-urban differentials in living conditions have just recently emerged as key issues of international agencies and public health research (Goldstein et al. 1995; Wang'Ombe 1995). Few years ago, public attention was mainly drawn to rural problems of health care, assuming a somewhat simplifying urban-rural-dichotomy (Schell et al. 1993). Compared to their rural counterparts, urban areas were perceived as quite homogeneous, well-served sites with
good access to health care, and better opportunities of education, occupation and income (Phillips 1993; Harpham and Stephens 1992).

**Epidemiological transition or polarization?**

Consequently, patterns of public health, morbidity, and mortality were described in terms of an "epidemiological transition" (critically reviewed by Phillips 1993). The basic assumption is that urbanization, modernization, and industrialization, accompanied by changes in lifestyle and individual behaviour, lead to a marked shift from the prevalence of infectious and communicable diseases – typical of rather underdeveloped rural areas – to a preponderance of chronic, degenerative, non-communicable and man-made ailments characteristic of urban populations and "affluent societies".

However such an "epidemiological transition" does certainly not apply to the largest part of the urban poor especially in the developing world. Many studies provide evidence that "incomplete" urbanization, overcrowding, lack of essential infrastructural services, poor hygienic conditions, and shortages of financial and social resources make the urban poor suffer from "the worst of both worlds" (Harpham and Tanner 1995: 4): infectious diseases and malnutrition due to underdevelopment as well as chronic and degenerative illness from modernization and changes in lifestyles (Stephens and Harpham 1992; Stephens 1995; Phillips 1993; Bradley 1997; Harpham 1986).

Seager (1995) therefore argues that – in the case of the developing world – it is more appropriate to speak of an "epidemiological trap", being a major challenge to urban health research. Phillips (1993: 97) emphasizes: "In the context of epidemiological change, it is no longer suitable to classify cities simply into developed or developing, or into north-south or east-west, based on the countries in which they are located. Neither is it easy to say whether those urban areas that have grown rapidly have 'better' health than the less urbanized areas. It is better to acknowledge that there will be various sub-groups in urban populations in terms of health". Cities in countries such as Mexico, Thailand, and Malaysia provide evidence of an "epidemiological polarization" between poor and more affluent population groups. Additionally, it appears that epidemic outbreaks of infectious diseases indicate some kind of counter-transition, that is, changes in patterns of morbidity and mortality may be reversible (Phillips 1993).

Physical or infrastructural factors that favour proliferation and transmission of parasitic and infectious diseases such as lack of sanitation, shortage of clean drinking water, and unplanned, open waste dumps owing to uncontrolled and constant migration to slums and squatters already seem
to be well-documented (e.g. Crompton and Savioli 1993; Bradley 1997; 
Soares et al. 1995; Kumate 1997; Horton 1996). But, again, these studies 
tend to concentrate on determinants of the "physical environment". For the 
most part, attention is neither drawn to likewise important and interrelated 
social, socio-economic and cultural indicators (e.g. nutrition, individual 
behaviour, employment patterns, income, education, and family support), nor 
to their complex interlinkages that might reveal intra-urban differentials in 
living conditions in a more comprehensive way (Stephens 1995; Stephens 
and Harpham 1992; Tanner and Harpham 1995).

Study designs taking account of the multitude of such potentially 
health-related determinants are of course complex and expensive. Availability of 
disaggregated data is an essential prerequisite (cf. Harpham 1986; 
Stephens 1995; Tanner and Harpham 1995; Seager 1995). However, success-
ful pioneering work on intra-urban health differentials has already been 
conducted in Accra (Ghana) and São Paulo (Brazil) with the help of envi-
ronmental and health data linkage.

Songsore and Goldstein (1995) e.g. report on a research programme in 
the Accra Metropolitan Area aiming at investigating health differentials in 
residential areas and socio-environmental zones by using several data sets 
collected routinely or on an ad-hoc basis (censuses, household surveys, and 
mortality data). According to demographic and (physical as well as social) 
environmental indicators, such as population density, population growth 
rates, age distribution, ethnicity, income, infrastructure supply and housing, 
seven zones representing different degrees of socio-environmental depriva-
tion could be distinguished. Ecological correlations with mortality data 
(crude mortality rates, infectious and parasitic disease mortality, respiratory 
disease and circulatory disease mortality) showed that life in areas with 
worst socio-environmental deprivation is highly associated with mortality – 
due to both poverty-related infectious and parasitic diseases, and circula-
tory illness (Songsore and Goldstein 1995).

Similar findings derived from environmental and health data linkages 
at the micro-level are presented by Stephens et al. (1995) with respect to 
São Paulo. The authors report on a collaborative initiative of several na-
tional and municipal institutions aiming at developing a database to inves-
tigate socio-environmental living conditions in several city districts. For 
that purpose, an index of socio-environmental deprivation based on rou-
tinely collected data was developed and linked with spatial disease patterns 
and mortality data. Variables included in the index were income (average 
per capita income), education (illiteracy rate and persons who did not finish 
primary school), sewerage facilities (percentage of houses connected to the
central sewerage), water supply (average per capita water consumption), and housing conditions (average number of persons per house).

Four zones with different socio-environmental conditions could be distinguished in São Paulo which were then linked with disease patterns. The findings revealed that 44% of all residents live in areas with worst socio-economic, material and environmental conditions. Moreover, these people suffer from considerably higher mortality rates (including deaths from circulatory diseases) compared to those resident in wealthier districts. In addition, violence became a major cause of death. Mortality due to crime and violence was observed to occur at significantly higher rates in poor city districts (Stephens et al. 1995)

Violence: not only a consequence of material deprivation

As an important health-related factor of the micro-level however, violence still appears "under-researched". It is estimated that every five years, 60% of inhabitants of cities with populations of 100,000 or more become victims of violence. This does not only apply to North America and Europe where most persons live in urban areas, but also to Africa where the urban population is smaller than the rural population (Vanderschueren 1996).

Levels of violence vary considerably from place to place and are related not only to the pattern of urbanization, but also to the political and economic climate, traditions, culture and other social factors. It is estimated that the increase of violence in urban areas is 3-5% per year (Vanderschueren 1996), which is higher than the population growth rate in those areas. In cities, forms of violence considerably vary by the time of day (afternoon, night and morning). Such forms include sexual and domestic violence, violence among individuals or groups, and a state's violence against its citizens or community groups.

Rosenberg and Mercy (1991) define violence as the use of physical force with the intent of causing harm, injury or death. According to Jeanneret and Sand (1993), the following forms of violence can be distinguished:

1) Private violence:
   A) Criminal offences, which may be differentiated into a1) fatal acts (murder, assassination, deliberate poisoning); a2) acts inflicting corporal harm (deliberate blows and injuries); a3) Sexual violence (rape)
   B) Non-criminal
   2) Collective violence.
   A) Of citizens against authorities (terrorism, revolution, strikes)
B) Of authorities against citizens (state terrorism, oppression and persecution, torture).

In terms of intervention and prevention, it is particularly important to understand the underlying causes and major risk factors contributing to violence. In the United States, Cohen and Swift (1993) identified three root causes: a) economic: Depressed economic conditions within a given community, as well as individual cases of unemployment and underemployment lead to significantly higher levels of violence. b) Oppression: oppression and resulting feelings of inequality and powerlessness. This category includes sexism, racism and discrimination by reason of age, ethnicity, class and cultural background. c) Mental health: A non-supportive private environment or destroyed family relations, including physical or psychological abuse, may result in low self-esteem and aggression.

Regarding U.S. cities, Wallace and Wallace (1997) e.g. show that neighbourhood disintegration and weakened community ties due to public service cuts and political marginalization of decaying city districts promote the spread of violence, crime, and diseases and their diffusion into surrounding more affluent suburbs. Similar findings are presented by Massey (1996) and Lawrence (1996) who outline that criminal behaviour and violence is generally strongly associated with poverty and income deprivation, being a severe problem in most cities all over the world. A brief report by Oloruntimehin (1996) confirms the relationships between socio-economic and material deprivation and delinquency, violence, and crime also among African rural-to-urban migrants. The author lays special emphasis on the situation of women, who are most severely affected by (spouse-inflicted) violence, including sexual harassment.

**Gender-related (domestic) violence**

Such domestic forms of violence however do not appear to be a particular urban health problem. Studies rather provide evidence that it crosses all socio-economic statuses and regions. According to Liu (1995), violence against women can be considered a measure of society's inequalities, and a problem of both genders. Violence against women in the home is as common and serious as assaults on the streets. However, it remains largely concealed because of its personal nature and associated shame, guilt, and social taboos. Reported violence is just the tip of the iceberg. Victims are more likely to approach non-governmental organizations than state institutions. The health impact of domestic violence is an obstacle to economic and social development, and should be recognized as a public health issue.
The historical roots of domestic violence go back to patriarchy, when husbands and fathers controlled everything (Liu 1995). Patriarchy prevails in feudalistic systems (as e.g. in Pakistan) where men are considered superior and women are seen as chattel, and expected to be dutiful. Glantz and Halperin (1996) report that the cause of domestic violence is most often attributed to women's disobedience, and actual or imagined infidelity. The low status of women and rapid social change which has weakened the extended family structures contributes further to the notion that male heads of the household can do anything with their wives and children they wish (Njovana and Watts 1996).

In 1995, the Beijing Conference on Women affirmed that physical, sexual and psychological abuse of women occurs regardless of income, class or culture. Domestic violence is, therefore, prevalent among all socio-economic strata and education groups. It is debatable whether social causes of domestic violence stem from economic backwardness, insufficient protection by laws and regulations, and low educational levels. Levinson's predictors of female violent societies were inequalities, physical violence as conflict resolution, male authority and decision making at home, and divorce restriction on women (Heise et al. 1994) Violent behavior of men has also been ascribed to consumption of alcohol, machismo, poverty or attempts to get their wives to leave them (Glantz and Halperin 1996). Sen (1996) found that single women and mothers were vulnerable to domestic violence due to stereotyping and economic insecurity. As definitions of abuse and its determinants vary broadly, it is difficult to compare studies conducted in different cultures and countries.

Domestic violence is frequent in both developed and developing countries, but representative, community-based data are scarce. Globally, it is estimated that domestic violence and rape constitute 5% of the health burden for women in the reproductive years (Desjarlais et al. 1995). Heise (1993) identified battery as the greatest single cause of injury to women in the US, about one-fourth of women (range: 21-30%) reported a beating by their husband at least once in their lives, and half of all men beat their partners at least three times annually. In India, dowry deaths are an escalating problem (United Nations 1991); Anderson and Moore (1993) and Heise (1993) reported 4,835 dowry related deaths in 1990. "Honour killings" of women and men in tribal societies of Pakistan are often reported in the popular press.

Similar data have been reported from other countries. A study from Chile in 1988 revealed that 80% of 122 women interviewed acknowledged having experienced domestic violence (Larran and Rodriguez 1993), and 33% of women medically treated in emergency rooms had been battered by
partners in Lima, Peru (Heise 1993). Heise et al. (1994) also reported that 6% of women died as a result of domestic violence in Shanghai, China in 1984, that a "family quarrel" was the leading cause of all suicides reported to the Ministry of Justice in Egypt in 1991, and in Papua, New Guinea, almost 73% of the murders of adult women were committed by their husbands. In Bangladesh, wife murders account for 50% of all murders (Stewart 1989). In addition, female infanticide was widely reported from China in the 1980s (Kelkar 1987).

Apart from physical injuries, the psychosocial consequences of violence are also grave. A study in North America showed that battered women are four to five times more likely to require psychiatric treatment and five times more likely to attempt suicide than nonbattered women (Stark and Flitcraft 1991). Data from other parts of the world, such as Oceania, South America and China also suggest that wife beating is directly related to depression and suicide (Counts 1987 and 1990; Gilmartin 1990).

Ethnographic research in developing countries has provided evidence of violence as a significant cause of injury, ill health and death (Heise et al. 1994). Domestic violence leads to destruction of physical and mental health and dignity, jeopardizes family relations and healthy childhood, and endangers women's autonomy and social stability. It affects women's physical and emotional strength and weakens their confidence. Other consequences are anger, repulsion, lack of sexual pleasure, sadness, fear, mental trauma, nervousness, anxiety, worry, despair, disappointment, and regret (Glantz and Halperin 1996). Frequently there is an associated negative impact on women's reproductive health as violence often occurs in connection with pregnancy and delivery, or with fidelity and sexuality. Njovana and Watts (1996) found that domestic violence during pregnancy was a major contributing factor for maternal mortality in Zimbabwe. Women's ability to seek care is also affected because violence increases the control which men exert over women. Associated fear, decreasing confidence, and increasing dependency further aggravates gender inequities.

Interviews with battered women showed that leaving the aggressor, accepting violent acts or self-defence are common strategies of victims to deal with domestic violence (Glantz and Halperin 1996). Sen (1996) found that more than 66% of 47 abused women responded by informing others, crying, or offering resistance.
Monitoring violence as an urban health problem: the example of South Africa

In 1999, the WHO Kobe Centre (WKC) published its comprehensive "Global Atlas on Violence and Health" (WKC 1999), providing an initial and general overview of available data relating to violence and crime. The data were (among others) obtained from the World Bank, the United Nations, Amnesty International, the International Crime Victims Survey (ICVS), and the WHO Mortality Databases. The Atlas illustrates the scarcity of data and highlights the need for easily measured indicators. Particularly information about African countries are very limited, as many African states do not cooperate with organizations such as World Bank or WHO. Even when agreement is reached, generation of representative data is expensive, time consuming, and difficult.

South Africa however can be considered an exception - it has become one of the most violent countries of the world. For this reason, much research on violence has taken place in this African country, and many findings are published on different internet sites of the Medical Research Council (MRC), and the Centre for Study on Violence and Reconciliation (CSVR).

Since the recognition of violence as a major problem in South Africa, violence and injury have been given research priority. A national surveillance system to monitor injury and violence patterns in South Africa has been developed on behalf of the National Departments of Health and Safety and Security. The system consists of three components: a fatal injury surveillance, a non-fatal injury surveillance, and a sentinel surveillance of substance abuse in trauma.

a) Fatal Injury Surveillance System

The Fatal Injury Surveillance System focuses on deaths due to non-natural and undetermined causes. Information generated by medico-legal procedures is used as input data for the Non-natural Mortality Surveillance System (cf. Peden and Butchart 1999), now called the National Injury Mortality Surveillance System (NIMSS) (Butchart 2000). 21 information items are compiled and transferred into a single database using an internationally comparable code system. These items include demographic information about the victim, spatial and temporal characteristics of the event, the presence of alcohol and other drugs, the major causes of death (i.e. homicide, accident, or suicide), and the context of the attack in the case of violence.

The NIMSS collects information from existing investigative procedures at mortuaries, state forensic chemistry laboratories, and Criminal Record Centres. Staff from the MRC, the University of South Africa, and the
Council for Scientific and Industrial Research maintain the system. Its pilot implementation and evaluation started in June 1998 in 15 mortuaries across South Africa. Most of the information is collected by the mortuary staff leaving only data from court investigation to be added later.

The first results published in 1999 were limited to only 25% of the 60,000 non-natural deaths occurring each year in South Africa. The report provides a basic profile for the ongoing extension and improvement of the system. It is estimated that case coverage will be up to 50% for the year 2000 and reach 80% by the end of 2001.

According to the 1999 results, the majority of the victims were black (69%) males (79%) younger than 44 years (80%) killed through homicide (51%). More than half of the homicides were inflicted with firearms, and one-third with sharp instruments. It is remarkable that 80% of the sharp instrument victims and 40% of the firearm victims had a positive blood alcohol concentration.

The NIMSS aims to improve the prevention and control of injuries in South Africa as well as the evaluation of the impact of direct (e.g. gun law enforcement) and indirect (e.g. socio-economic development) interventions which should combat some of the major external causes of fatal injury. The value of the NIMSS depends upon the extent to which its findings are used to improve policies and practices for the prevention and control of violence and accidents in South Africa. The NIMSS can help to build a new information culture for the benefit of administration, budgeting, management and safety promotion. It is scheduled to integrate it into other health and information systems (Butchart 2000).

b) Non-fatal Injury Surveillance System

The Non-fatal Injury Surveillance System is still in its early stages of development. The objective of this system is to obtain information about violence and injury through a sentinel system, run by health facilities throughout South Africa. However, one of the main problems of data collection is the huge number of injuries. It is estimated that for every non-natural death there are 60,000 non-fatal injuries. This means that about five million cases occur each year, of which only approximately 50% are registered at health facilities. As it is not possible to monitor all injuries, a sampling-based surveillance is required. A prerequisite for such a system is to find sentinel sites which are able to gather representative demographic, socio-economic, and injury data. However, severity of injuries varies markedly, and at each health facility, a wide range of injury patterns is registered.

The information gathered over a one-month period in early 2000 show that more than half of the injuries registered in two hospitals in Durban and
Cape Town is due to violence. Although it is not possible to make general statements, the results of the pilot study give an impression of the necessity to improve the surveillance system by including tertiary, district, and private hospitals in order to better understand the patterns and backgrounds of violence, and to establish adequate intervention programmes.

c) Sentinel Substance Abuse Surveillance System

There is a strong relationship between the use of alcohol and other drugs, and violence. About 50% of all patients injured through violent acts are intoxicated by the time they are treated at health facilities. Therefore, a longitudinal surveillance is required to identify changes in the nature and extent of the use of these substances and their co-variance with patterns of violence and injury (cf. Peden and Butchart 1999). Due to lacking resources, personnel, and access to chemical pathology laboratories, it is not possible yet to set up a surveillance system throughout the whole country. Only very few hospitals have been chosen as sentinel sites to monitor alcohol and substance abuse among non-fatally injured patients.

Although it is still in an early stage of development, the South African National Surveillance System can be regarded as an example of how to monitor violence and its circumstances, and to collate information about the determinants of violence. The necessity of a sentinel surveillance system, which reveals the background of different violent acts, becomes obvious by looking at occurrences of rape as an example of violence. It is generally accepted that the incidence of violence against women reflects the overall level of violence in a country. In South Africa, rape has reached epidemic proportions with 50,481 officially reported cases in 1996. Considering that the National Institute for Crime Prevention and Rehabilitation of Offenders (NICRO) estimates that only one in 20 rapes is reported to the police, it is assumed that approximately one million cases occur in South Africa each year, or nearly one every minute (Vetten 1997).

Rape is described in many different ways depending on the classification applied by the research team and the context of the studies: Labels and categories range from "gender violence", "interpersonal violence", and "domestic violence" to "sexual violence". However, there are no exact figures for any of these classifications. Incidents of domestic violence are hidden amongst cases of e.g. common assault, attempted murder, or firearm use (cf. Vetten 1999). Even though several organizations published estimations on the extent of the problem, their calculations remain unclear. The nature of domestic violence as a concealed and underreported form of violent assaults is a barrier to collecting reliable and representative prevalence data (Jacobs and Suleman 1999). Although a significant number of victims of domestic violence regularly attend health facilities, the origins of most
of the injuries are not recognized. It is therefore necessary to survey not only the actual act of violence, but also its circumstances. Such a study should cover different aspects of violence which go beyond the obvious physical symptoms.

In the context of domestic violence, rape is generally considered a violent act committed by the husband, boyfriend or other well-known persons. However, in 1993 it was estimated that about 44% of rapes were committed as gang-violence called "jackrolling". The term was coined to describe the violent abduction of women by a gang called the "Jackrollers". The gang operated in 1987 and 1988 in Soweto under the leadership of Jeff Brown, who had the status of being the most feared man of the township. As abduction of women became more frequent, anyone who did it could be called a jackroller, and "jackrolling" became a commonly used verb in the township vocabulary (Vetten 1997). This kind of rape was not only to subdue women, but also to demonstrate power, as it was deliberately done in public, if possible in the presence of the victim’s spouse. When jackrolling first occurred, the victims were carefully selected. Mostly they were women who were thought to be out of reach because of their class and status.

The emergence of jackrolling in the early nineties coincided with a serious rise in youth unemployment. An explanation for this association can be found in socio-cultural ideas of male dominance, supremacy and aggression, and the fact that many men believe that work is firmly tied to gender expectations and their experience of masculinity. Unemployment is regarded as a personal rather than a social failure. Therefore, jackrolling can be considered a way for young men to try to gain back their masculinity and self-confidence.

In the last few years, no further reports on jackrolling have been published. Recent publications dealing with rape and other forms of gender-related violence did not mention jackrolling. Whether or not jackrolling is still a problem in South Africa, it shows clearly that social, economic, and political aspects should be considered when monitoring and investigating violence and injury.

Apart from this, gender relations particularly in South Africa cannot be separated from class and race structures, and the expression of violence against women has to be viewed against this specific political background (Vogelman and Lewis 1993). In South Africa, there is a well-known expression: the "culture of violence". It is often used to describe the fact that employing violence to resolve problems has a long tradition in South Africa's history. Even after the liberation movement against apartheid, vio-
lence still seems to be a popular method of sorting out problems within sexual relationships, the family, the workplace, and even political spheres.

Although incidence rates of violence are high in South Africa, the risk of victimization is not evenly spread among the social strata. Predominant risk factors are gender, race, and class. Poor black African working class women are more than ten times more likely to experience a violent assault compared to their white counterparts. In South Africa, it was the economic exploitation and segregation advanced by the apartheid system that systematically resulted in high poverty rates among black South Africans and women in particular (Callaghan et al. 1997).

South Africa has a very turbulent recent history starting with settlements of Europeans, continuing with apartheid, and to date with democracy. In the post-apartheid period, South African experts have developed surveillance systems and comprehensively investigated violence and its determinants. However, the sound work which has been started is now restricted due to lacking resources. It is clear that much remains unexplored: different forms of violence as well as many of its social, economic, and political determinants.

Although progress has been made in South Africa, there is still much to do in this country as well as in the African continent. In most African states, there is an equal, if not a greater need of work in this area. Indicators such as poverty and unemployment are often available, but funds are more scarce. To promote violence research in Africa, agreements must be reached between governments and NGOs, and resources should be made available. Until this happens, the increase of violence will continue unabatedly throughout the African continent.

3.1.2 Vulnerable groups, ethnic minorities, and cultural perspectives on health

Women

According to the above studies, women often seem to be a particular vulnerable group as regards violence and crime in urban areas. However, gender appears to be a decisive variable of urban health in many respects, not only regarding violent victimization. As Kettle (1996) shows, women are more severely affected by material deprivation, poverty, and poverty-related health risks, since they world-wide earn less income than men. Higher illiteracy rates and lower educational levels often prevent women from achieving better occupational opportunities, and decrease the chance for vital health learning, especially concerning sanitation, personal hygiene,
and family health care. Moreover, gender discrimination in the allocation of food and health care results in significant higher mortality and morbidity rates in women compared to men.

Such cultural, socio-economic and social factors affecting women's health are outlined by Ojanuga and Gilbert (1992), additionally focusing on the fact that women in developing countries are for the most part excluded from the participatory process in planning and implementing health care services, with the effect that women's special concerns and interests may be frequently neglected.

The authors moreover provide evidence that women in many countries generally have less access to medical care than men. This can already be observed in early childhood. As women are often regarded as a burden in some cultures, female children are given much less treatment and care in the case of illness than boys. Furthermore, their diet tends to be less nutritious than that of their male counterparts. In some countries, women face the combined effect of traditional seclusion and modern exclusion from public spheres. This makes health care accessibility difficult even for those women who are not poor. In addition, cultural barriers like the need to have their husband's consent when going for medical (especially gynaecological) treatment hinders many women from getting adequate medical aid.

Ojanuga and Gilbert (1992: 616) conclude: "While there are a number of systematic barriers to care that inherently make accessibility difficult for many women, culture occupies a dominant position in altering the current situation for women. Women must become agents of change to improve their situation. Factors such as access to income, legal rights, social status, and education may prove far more important in determining women's access to health care than technology distribution and government strategies."

Children and adolescents

Children and adolescents belong to the most vulnerable groups in rapidly growing urban areas. It is often taken for granted that women care (or rather should care) for the children, while the husband is working to earn money. This idea however is far from the reality particularly of poor households in developing countries. Usually, both parents, and often also the children, have to work to realize a sufficient income. In such cases, adequate child care and child health promotion cannot be ensured.

A positive example of a project aiming at improving child health care is outlined in Jahn and Aslam's (1995) study on fathers' perceptions of child health in a squatter slum in Karachi. The slum is inhabited by a group of Muslim migrants. Because women's participation in public life is restricted
in Islamic societies, it could be shown that fathers might be an additional target group for projects dealing with the improvement of child care. The study demonstrates that fathers are emotionally very closely attached to their children. They spend much time with them whenever possible and are important second-line caretakers and key decision-makers regarding child health issues. Due to their involvement with the children and their affairs, they should be considered an important resource for the improvement of child health, especially when women face more obstacles from the state bureaucracy and are less educated. The authors conclude that "this situation calls for a two-pronged approach to child health promotion involving fathers and mothers" (Jahn and Aslam 1995: 203).

Mental health problems as an effect of urbanization are addressed in a study by Harpham (1994). The author shows that urbanization involves rapid social changes, disintegration, dissolution of social relations, and decreasing social control — factors that strongly contribute to mental diseases particularly in young people. As Harpham (1994: 239) says, "it can be hypothesized that long term difficulties and life events will increase with urbanization in developing countries. [...] The social and behavioural changes associated with urbanization may exacerbate the negative impact and thereby diminish the positive impact."

Other studies point out that urbanization and its related socio-cultural changes promote risky behaviour in young people, especially in terms of alcohol, drug, and tobacco consumption. As Takano et al. (1996) show, this risky behaviour can be linked to the rise of psychological problems, i.e. as a means to cope with mental stress. The authors particularly observed a general increase of alcohol consumption among young Japanese females. They conclude: "Drinking as a means to cope with stress showed a statistical association with young age. The lack of coping experiences in younger age groups may increase stress-coping drinking. [...] The survey showed that the socio-cultural changes of urbanization are linked to the recent increase of female drinking in the Tokyo megalopolis" (Takano et al. 1996: 48).

**Ethnicity and minorities**

Economical and social deprivation, health status and health differentials among ethnic minorities as well as cultural barriers to effective health care has increasingly become one of the major fields of public health research in recent years. However, some of the impacts on health status of ethnic minorities and the reasons for health status inequalities among different ethnic population groups are still poorly understood and have not
been fully clarified yet (Lillie-Blanton and LaVeist 1996; Bollini and Siem 1995). The relationship between material deprivation or poverty — studies provide evidence that poverty is more prevalent in minorities — and differences in mortality rates already appear to be well-documented (Polednak 1993; LaVeist 1993), but this is not the whole extent of the problem (Lillie-Blanton and LaVeist 1996; LaVeist 1993).

Instead of merely focusing on, for example, an individual's socio-economic status or even assuming that health outcomes are the results of biologic and genetic characteristics inherent in a racial or ethnic group, Lillie-Blanton and LaVeist (1996) propose a more comprehensive approach. The authors suggest that a person's socio-economic status can be considered an expression of the educational and economic opportunities available in one's social environment. Elements of this social environment are (among others) physical surroundings (e.g. neighbourhood and working conditions), social relationships (e.g. within a community or workplace), power arrangements (political participation and empowerment, individual and community control and influence), and interrelated factors of racial barriers and discrimination, all being potential determinants of health outcomes. This approach thus focuses on the broader context of social living conditions and forces that affect the individual and one's health.

In a study on black-white differentials in infant mortality rates in U.S. cities, LaVeist (1993) provides evidence of the interrelationship between socio-economic, social and political factors of a social environment affecting the health status of African Americans. The author addresses the associations between infant mortality rates and three social determinants: poverty, racial residential segregation, and black political empowerment. As already confirmed in many other studies, findings show that poverty is strongly correlated with high mortality rates among black minorities.

As the same however is true with respect to white infant mortality rates, poverty does not appear to be the only predictor of health status differentials among the races. LaVeist (1993) revealed that rather racial residential segregation accounts for the discrepancies between black and white infant mortality rates. The author shows that in highly segregated communities, a large share of the black population suffers from poverty, a lack of adequate public and medical services, and often severely polluted environments. In addition, differences in infant mortality rates are partially attributable to the level of black political participation and community involvement: Black political empowerment, being higher in highly segregated communities, contributes to the improvement of material living conditions, and reduces black infant mortality rates (LaVeist 1993).
Similar assumptions concerning poor health outcomes among migrants and ethnic minorities compared to the native population are presented by Bollini and Siem (1995). The authors focused on the prevalence of prenatal mortality and occupational accidents and disabilities. As Bollini and Siem (1995) say, health status inequalities could be explained in terms of the "entitlement"-approach, suggesting that an individual's health status largely depends on his or her ownership of some alternative commodity bundles. Such "entitlements" both depend on what the person initially owns and what the individual can legally acquire through exchange – called the "exchange entitlements". Employment patterns, income, social security benefits, and socio-cultural norms with regard to certain rights e.g. of women to inherit property or to work are considered important factors influencing the person's exchange entitlements.

From this point of view, health disparities between ethnic minorities and the native population are attributable to the minorities' reduced entitlements in the host society: Migrants and ethnic minorities do not only suffer from poor and hazardous working and living conditions which directly affect their health status, they also have limited access to health care services and to major areas of the host country's society in general. As the authors say, this can be traced to various political, economic, administrative, and cultural barriers, e.g. in the form of low income occupation, limited rights to reside and to work, linguistic barriers, as well as racism and discrimination e.g. regarding health care supply, including neglect of the minorities' specific needs concerning medical care (Bollini and Siem 1995).

Cultural-anthropological perspectives on health

Studies on health and health care needs of ethnic minorities show that health and disease are to a large degree not only related to factors of the social environment, but also to cultural aspects. Moreover, the definition of health and disease itself is coded in cultural terms. Following a phenomenological approach inspired by the work of Mary Douglas, Idler (1979) notes that the body is the meeting ground of the natural and social worlds. Social and physiological experiences are not separated but usually integrated. Thus the disruption of the body through illness disrupts as well the everyday life social context. In fact, illness usually requires behaviour and spaces (hospitals etc.) different from usual everyday life spaces and behaviour. Due to the inseparability of physical and social experiences of illness, the ways how to handle such situations cannot be generalized but are culturally coded. How does culture influence illness and health? Idler points at the following main aspects:
1) The self-perception of illness and symptoms: Episodes of illness are not evenly distributed. First, among some groups some people tend to define their conditions as "ill" more often than others. Second, in a bi-ography, episodes of illness tend to be clustered. The explanation for these clusters is that "the stress which produces disease varies with the individual's ability to cope with his life-problems: the clusters of illness episodes appeared at just the time that people perceived their lives as most unsatisfying, over-demanding and threatening" (Idler 1979: 725). Thus the experience of illness is not objective but depends on the subjective interpretation based on culturally available terms and symbols.

2) Lay health knowledge: Studies in Britain showed that self-care prac-tices were widespread. Similarly, in the US most people engage in self-care when confronted with a disease interpreted as treatable. Fry (1973) concludes for Britain that the whole National Health Service would collapse if all those managing illness episodes themselves would go for treatment. Apart from forms of self-treatment, lay knowledge also concerns the interpretation of an illness, its valuation, and the degree of suffering.

3) Relation to modern medicine: A study on minority groups in New York (Suchmann 1960) has shown that strong variations existed with respect to attitudes towards the medical profession and behaviour during ill-ness. In view of these findings, Idler (1979: 730) concludes: "An analy-sis at the level of the small groups in modern society will soon banish the illusion that modern medicine has provided a uniform and universally accepted theory of illness and treatment for all members of the society."

Because illness is a socially coded experience, and self-treatment and the interpretation of illness is culturally influenced, the socio-cultural con-text plays an important role in urban health research, exceeding common research perspectives on issues such as socio-economic status and poverty etc. As cities, particularly larger cities are characterized by cultural heterogeneity, their populations can hardly be analysed in a general way. Different groups within a city experience illness in a fairly different way and follow different strategies to cope with it, even if the disease is the same (cf. also Eckert and Goldstein 1983).

Idler (1979) therefore favours a terminological differentiation between disease as a biological/physiological concept and illness as a social/cultural concept. Illness is the human experience of disease. As such it is not only an individual experience with an impact on behavioural changes, but as well an issue of the community to which the individual belongs.
Apart from the above mentioned culturally influenced forms of self-treatment, lay knowledge of diseases, and understanding of illness and health, the following cultural variables potentially affecting the health status could (among many others) be considered:

1) The medical culture in the sense of commonly understood symbols, languages, techniques and practices, and perceptions of diseases of those engaged in the health systems;

2) cultural specifics with respect to gender-related variables (child-rearing practices, medical treatment of women, relevance of illness to women etc.);

3) access to medical treatment;

4) expected outcomes of medical treatment;

5) perceived health needs;

6) religious beliefs and

7) the individual's social and cultural integration into a community as well as the degree of social cohesion and support.

In view of such cultural aspects on the definition of health and disease, the question emerges how particular needs of ethnic minorities regarding health care can be adequately met. As Webb (1996) with respect to the British health service provision says, an essential cultural barrier to sufficient health care is that the "western" medical care system is based on a "eurocentric understanding of illness" (Webb 1996: 264). The neglect of the minorities' cultural heritage, their traditions, values, and beliefs, including the way health and illness are perceived by patients, may both negatively influence the outcome of the physician's treatment and deter the patients from accepting the established medical system of the host country. It is therefore crucial that refugees and minorities are educated in the common types of treatment that specific diseases require as well as in the effective utilization of the national health care system. Moreover, it is likewise decisive to educate the staff of health care facilities in the cultural, religious, and health beliefs of ethnic minorities in order to avoid inappropriate practices and the patients' rejection of further medical care (cf. Ruiz 1985; Hoang and Erickson 1985; Blanche 1996; Webb 1996; Johnson et al. 1983).

3.2 System of medical care

The above sections have shown that there are different conditions limiting the access to health care services and health support systems in megacities In the following chapter, health care accessibility of minorities and
other underprivileged population groups, socio-economic, socio-cultural, and institutional barriers to the health system identified in the scientific literature are outlined in greater detail.

Institutional barriers impede accessibility to medical services and health support in many ways. In part, such barriers are intentionally set up to limit health care support for certain people, and some are even institutionalized in the form of formal regulations and laws, or through economy e.g. in the form of high prices and charges for drugs and medical treatment. Most barriers however are unintended and result from the discrepancies between a medical and bureaucratic culture and the culture of those demanding services. According to the scientific literature, the following barriers have been identified as some of the most important:

1) Language (language differences between provider and recipient, as well as difficulties of communication resulting from the providers' specialized language. Even those who understand what is said often cannot comprehend the medical jargon);

2) cultural stereotypes, including prejudices, middle class views, and expectations regarding the behaviour of the recipients;

3) different understanding of needs, illness and disease;

4) treatment of those demanding services as nuisance, and non-consideration of the patient's personality, and

5) perceived status differentials between provider and recipient.

In the following sections, studies are summarized that revealed at least some of these barriers to effective health care.

3.2.1 Access to the health care system

The links between prenatal care accessibility and low birth weight rates in a large, multiethnic urban population in the U.S.A. were addressed by Scupholme et al. (1991). The authors show that educational level, knowledge of health benefit schemes, the location of prenatal health care services, transportation opportunities to the clinics, previous experiences with medical treatment including language barriers, convenience of clinic hours, and staff attitudes as well as availability of financial resources were major variables affecting accessibility to and utilization of prenatal care.

Valdez et al. (1993) addressed accessibility to health care services in Latino communities in the U.S.A. The authors report that a large proportion of Latinos is completely uninsured, owing to employment in low-wage sectors that do not include membership in health insurances. An unfavourable doctor-patient-ratio — only few physicians set up in practice in Latino
communities —, an extreme shortage of Latino health care professionals, resulting in time-consuming, large distances to be travelled, and the exclusion of Latinos in planning and managing health care services are further factors of deteriorating health care accessibility. Patients' reports on linguistic barriers, lack of sufficient cultural competency of the provider, as well as cultural stereotypes and prejudices suggest that the U.S. health care system hardly meets the interests and needs of the Latino minorities.

The case study of Alma by Blanche (1996) gives a detailed account of these difficulties. From a general point of view, it seems as if Alma, a Latino woman with a child who went to a therapy\(^5\), was not able to cope with the medical system, and to act in a manner best suited for the well-being of her daughter. However, closer examination showed four coping mechanisms used by Alma. Firstly she tried to minimize cultural and language differences or even deny them. Secondly she readily accepted the information of the medical personnel during interaction, thirdly she only questioned those persons she trusted, and finally she followed passive resistance by "non-compliance."

The reason for these coping strategies is the common feeling of powerlessness and confusion, many people from poor minorities share. Thus even when Alma did understand what the providers explained to her, she usually did not comprehend the latinized diagnosis. Furthermore, even though she did not agree with or was sceptical about recommendations, she could hardly argue with the personnel and thus preferred passive resistance. Another problem was that it seemed as if she was not interested in the therapy, because she missed several appointments. However, the reason was simply that she could not afford the bus. Blanche (1996: 275) concludes: "The complexity of each person's life experiences cannot be penetrated by applying homogenous formulas of cultural diversity to our persistent middle-class standards of practice."

Other studies rather focused on socio-economic and socio-demographic determinants of health care accessibility. Inequitable patterns of household and per capita expenditure on health care services among different socio-economic population groups e.g. were found in a large urban area in Thailand by Pannarunothai and Mills (1997). Although the government implemented several health benefit schemes for vulnerable population groups, lowering compulsory contributions to health insurances (or even exempting the poor from the premiums), the underprivileged in Thailand are more likely to pay out of their own pocket for medical treatment and to spend a larger part of their income for health care services compared to more affluent groups.
The authors did not investigate whether also the health outcomes differed among the groups distinguished. Such differentials however appear plausible, since less money is left for a healthy way of life, e.g. with respect to housing and nutrition, the higher the share of own income that must be spent for health care provision.\textsuperscript{10}

Women's health care accessibility in a rapidly growing peri-urban area in South Africa was the main issue of a more comprehensive study conducted by Hoffman et al. (1997). Socio-economic and demographic variables such as age, marital status, education, employment, income, geographical area of residence, and household composition were included in this analysis in order to investigate disease patterns and the use of health care services. The authors found that both large distances to be travelled to health services and the health care charges deter women from regularly approaching health care facilities. Most of the women interviewed had little or no income. Additionally, educational level, and lacking knowledge of (preventive) medical care services were strong predictors of ill health.\textsuperscript{11}

The way how an effective health care system for minorities and the urban poor can be implemented is shown by Emmel and O'Keefe (1996). By focusing on disease patterns prevalent in a Bombay slum with approximately 10,000 inhabitants, the authors plead for a participatory approach to adequately consider the health care needs of the target groups, as well as their own understanding of illness. The study shows that slum inhabitants and health professionals have different perceptions of health and disease as well as distinct views of medical treatment, e.g. relating to cholera. Implementation of health care systems which are not fully linked to the needs of the target groups may therefore be ineffective. Emmel and O'Keefe (1996) moreover point out that many causes of ill health prevalent in the Bombay slum require social development, and not merely medical intervention. Health care professionals should therefore closely cooperate with development experts. Such a comprehensive inter-sectoral project has already been developed in Bombay with the participation of NGOs and private practitioners.

The attitudes of ethnic minorities towards standardized and generalized health systems as well as the effects of the neglect of minorities' needs as shown by Blanche (1996), Webb (1996), Valdez et al. (1993) and others are a possible research field of medical anthropology. Until recently however, anthropological research into health matters was confined to traditional medicine in primitive societies and village communities. Especially the urban context has hardly found any attention. Much knowledge however has been provided by anthropological studies on health systems in developing countries.
3.2.2 Anthropological research into health support systems

Anthropological research into health issues in developing countries has become more popular with the implementation of health support systems in these countries, or rather when the implementation faced several severe problems. In his review of anthropological research perspectives on health problems in developing societies, Foster (1984) points at the following main results:

1) One main problem of implementation of health projects, especially those demanding community participation, is that these projects aim at prevention, while the people often demand a curative medicine. Patients evaluate the use of medicine in how far it directly cures an ailment, not whether it prevents illness. A further problem of communal participation in such a project is that it implies access to resources from outside the village. This might lead to shifts in the local power structure. Especially the local community leaders might easily feel that they are excluded or their position challenged. In such cases, it may be that community leaders try to dominate the project on the local scale and thereby alienate others from it.

2) Another main field of research is the relation between traditional and modern medicine. The difference between both systems makes communication difficult and leads to misunderstandings. Especially in discussions with people of lower socio-economic statuses like villagers and slum-dwellers, it became evident that the view of practitioners was often distinct from that of the target groups. This however has changed in recent years. Practitioners are more aware of cultural differences and better understand the language as well as the patients' perception of illness.

3) With respect to traditional healers, anthropological studies have shown that their methods applied shifted a little bit from traditional to modern medical treatment. However, a new category of healers has emerged: the "syringe doctors" and "bus stop doctors". "They are simply clever fellows who recognise a way to make money, the modern equivalents of the old fashioned American carnival snake oil doctors" (Foster 1984: 849).

4) The main topic of further research should be the health bureaucracy. Foster (1984: 851) points out: "We have a pretty good idea of how communities face up to their health care needs, how they respond to the alternative courses that are presented to them. We know much less about the dynamics of health bureaucracies."
According to the above studies, cultural aspects play an important role as health determinants. Cities are socially, economically and culturally highly heterogeneous areas, and it cannot be taken for granted that all population sub-groups share the same understanding of health, medical treatment, disease or well-being. Instead implementing one system for all, differentiated systems have to be developed to serve the specific needs of specific groups. This can be considered a prerequisite for equal access to medical treatment. Particularly in developing countries where the formal health system can only serve a limited number of people, approaches are needed that take account of the participation of the target groups.

However, the development of effective health care systems for different vulnerable groups faces the problem that many cultural prejudices and stereotypes still prevail. Those having difficulties to cope with a system in which they feel powerless and confused are sometimes considered stupid and unable to do what is best, like in the case of Alma. Misunderstandings are common, even in projects aiming at providing specific ethnic groups. It is therefore important to recognize and understand cultural differences such as those outlined above to implement efficient health care projects.

4 Synopsis, conclusions and recommendations

As Stephens and Harpham (1992) point out, governments, policy makers, and NGOs attempting to develop programmes and strategies to improve living conditions and health care delivery, "have found that studies of the urban environment and health in developing countries are rare and often limited to the study of one age group, one disease agent, one social class or one environmental risk factor" (Stephens and Harpham 1992: 267).

Meanwhile, the focus of studies on urban health issues has shifted a little bit. Generally, instead of focusing on either environmental or individual factors, a perspective combining both has become more common. Recently, more attention has been drawn to the social environment not only of the city, but also of individuals. In the following final chapter, corresponding implications for future urban health research and health care programmes are summarized.

4.1 Improving research methodologies

In most of the studies summarized, rather conventional quantitative approaches have been applied. The problem of ecological fallacies resulting from the characterization of spatial units through correlation analysis of aggregate socio-demographic, economic and health data has already been
mentioned. Here attention will be drawn to the more qualitative, participatory approaches.

Participatory approaches have gained in importance, as it has become clear that no state of the developing world is able to finance a sufficient health support system. Even in cities, which are usually much better equipped than rural areas, access to medical services is quite difficult for many, especially the urban poor. For these population groups, special participatory projects have been developed. The question however is, how such participatory projects can successfully be put into effect, i.e. how the target groups’ contribution to the development of actually useful health support systems can be ensured.

The basic idea of successful participatory approaches is that people only participate if they understand that they will benefit from the project. Accordingly, the perceived needs (in contrast to the needs ascribed by experts) have to be taken into consideration. Simple interviews however are insufficient or would generate useless data, as the people usually have not really thought about the issue. Furthermore, participatory research does not only aim at integrating the target group into the project, but also into the research process. Such an approach is regarded as an open research and continuous evaluation process. All participatory methods have in common that the target groups are not only an object of research – rather, the research process is regularly made transparent to them. This decisively helps to integrate the population groups involved and to make them play an active part in the development process.

4.2 Recommendations for plans and programmes as collaborative and multi-sectoral actions

Apart from such research methodologies, further basic recommendations to public health care and infrastructure planning programmes can be derived both relating to the macro-level of urban environmental destruction, and to the micro-level of intra-urban differentials in living conditions and health outcomes.

With respect to the rather global problem of air pollution and water contamination, it was already mentioned above that many cities particularly in developing countries should take the first essential steps to implement measures aiming at tackling air pollution, i.e. to introduce comprehensive air quality monitoring programmes. Monitoring provides policy makers and city administrators with reliable environmental data and is a prerequisite of effective and adequate control legislation.
Furthermore, governments could establish subsidy programmes to encourage industry to develop new and better combustion technologies and wastewater treatment facilities. The earlier emission standards and control strategies are put into effect, the lower the maximum pollution levels and risks to human health. Such recommendations and measures seem to be a matter of course and shall not be addressed here in greater detail. The problem however is that modern industrial combustion technologies are fairly expensive. Many developing countries simply lack financial and human resources both to modernize industrial processes and to enforce observance of emission standards (cf. UNEP and WHO 1994; Mage et al. 1996).

As far as the intra-urban polarization in socio-economic and environmental living conditions and the special needs of the urban poor are concerned, two major conclusions can be drawn: many public health researchers agree with.

First, research into the complex interlinkages of factors underlying health differentials indicates that quick and simple measures solely aiming at improving environmental living conditions (e.g. concerning housing, sanitary means, and drinking water supply) will fail if associated social, socio-economic, and political factors of deprivation as well as cultural barriers to effective health care are neglected (cf. Stephens 1995; Stephens and Harpham 1992). This is, for example, shown by Harpham and Stephens (1992), summarizing the outcomes of various slum upgrading projects throughout the world: On the one hand, the physical environment could in many cases be improved. On the other, poverty-related social or economic structures of the communities (e.g. with respect to health care delivery, occupational opportunities, and education) were not significantly changed, as municipal authorities and NGOs specialized in such issues were often not involved.  

Second, many authors argue that no impacts on the health of urban populations can be realized by "technical solutions and standardized intervention packages" (Tanner and Harpham 1995a: 216). Instead, it is important to develop programmes of intersectoral, interdisciplinary and collaborative action that are both integrated into existing health care delivery structures and carefully tailored to local conditions in order to meet the demands and interests of the different population groups involved. Since urban settings are often too large and urban health problems too complex to be effectively managed by single institutions alone, decentralization of resources, and delegation of power and responsibility from central governmental institutions to municipal and sub-municipal authorities is required. This also involves detailed co-ordination and careful definition of responsibility at each level of action and among each of the participating institu-
tions, concerned e.g. with energy, food, agriculture, economic planning, education, social welfare, housing, infrastructure, transport, and so on (cf. Tanner and Harpham 1995; Tanner and Harpham 1995a; Lorenz and Garner 1995; Anonymous 1991; Phillips 1993; Harpham 1986; Seager 1995; Lawrence 1996; Harpham and Werna 1996; Wang'Ombe 1995).

Such an integrated programme is of course complex and may fail due to lack of political will and financial resources, inflexible organizational structures, bureaucratic constraints, and lack of experts (Lorenz and Garner 1995). Some cities in developing countries however have already been successful in the implementation of multi-sectoral approaches, e.g. through adaptation, extension, and modification of primary health care programmes that were originally developed in rural areas to improve both the physical environment and socio-economic living conditions (cf. Harpham 1986).

4.3 Outlook

The urban context in terms of the physical and social environment involves many health hazards. Accordingly, urbanization can hardly be taken as an unmixed blessing, and the question is, whether urbanization rates as predicted by the UN allow of maintaining or achieving sustainability in cities. As Stephens (1995: 118) points out, the root problem is poverty: “Cities of the developing and developed countries are unsustainable in human terms without the resolution of the underlying problem of urban poverty.” In a similar way, Angotti (1993) shows that most problems of the metropolises in the world are poverty-related. In fact, the urban poor are the main group affected by an unequal distribution of resources, and they have to live in quarters characterized by the worst environmental conditions like overcrowded slums and squatter settlements close to polluting industries or congested roads.

High growth rates of many cities in the developing countries make it impossible to cope with this problem. Urban poverty will probably not only remain but increase with urbanization. What does this imply for the question of sustainability of the large cities?

There is no doubt that cities pose a challenge to their inhabitants. There is no doubt too that the living conditions in most cities are not beneficial to health. However, while such negative aspects can hardly be overlooked and ignored, positive aspects are often underestimated. One reason is the prevailing ideology idealizing rural life in contrast to artificial and alienated urban life styles. As Gebhardt (1988) says, this romantic ideology derives from the heterogeneity, uncontrollability, disorder and even chaos of the cities. These features hinder any attempt to dominate the city in political,
social and economic terms. As large cities can hardly be governed, they can hardly be dominated.

Sennett (1990; 1991) regards this as the most positive aspect of cities. As much as they demand a civilized personality being able to cope with differences and conflicts, they require a "public sphere". Similarly, Wilhelm (1996) points out that "cities have a bad reputation, both in the daily press and among politicians. Many scholars support this poor opinion, tabulating data to corroborate the grim picture of decay, injustice, pollution, poverty and violence. This is an easy language for eager constituencies. But is it accurate? Does it illuminate reality and encourage solution?" (Wilhelm 1996: 10).

The present is a period of transition and change. This is commonly discussed under the labels of "globalization", "end of modernity", "second modernity" or "global age" (cf. Albrow 1997; Beck 1997, Beck et al. 1996). Globalization means that the world is not formed any more by rather independent regions. Instead, those processes forming the present are increasingly beyond states and regions. By flows of capital, knowledge, information, cultures, persons etc., the world becomes more integrated and interdependent. In these processes, cities and metropolises have turned into the new centres of a decentralized or polycentric world (cf. Castells 1991; Sassen 1991). As centres of an emerging global society, problems and conflicts become concentrated.

It is therefore not astonishing that the problems of urbanization cannot be overlooked. However, the problems emerging within cities are problems of a world society, not necessarily problems of specific urban areas. Of course, it is easier to blame problems such as pollution, overcrowding, stress, overexploitation of resources etc. on the cities instead of turning to the root causes, which are problems of a world society. From a distinct perspective, cities can be perceived as regions contributing to solutions to many problems.

Notes
1 The leading causes of death in Mexico City are heart diseases.
2 Hoek et al. (1995) e.g. focus on eating disorders in the course of urbanization. Insulin resistance and hypertension in urban areas in Zimbabwe is the topic of Mufundu et al.'s (1994) study. Soares et al. (1995) focus on schistosomiasis in an incompletely urbanized area in Brazil, Takano et al. (1996) address female drinking as a result of urbanization in Japan, Lee and Lin's (1994) report deals with effects of urbanization on gastric cancer mortality in Taiwan, and Vassallo et al. (1994) investigated associations between urbanization and cancer mortality in Uruguay.
Studies dealing with environmental deterioration have e.g. been conducted by Ezcurra and Mazari-Hiriart (1996), UNEP and WHO (1992), and Mage et al. (1996).

3 See e.g. the study by Sastry (1997) on child mortality in Brazil.


7 In some cases it is even regarded as positive if the female child dies, as this e.g. avoids large dowry payments like in India or parts of China.

8 AIDS can be mentioned as a further example of the consequences of risky behaviour. Urbanization is often accompanied by an increase in promiscuity which promotes the dissemination of HIV.

9 First it was diagnosed that Alma's daughter Vanessa suffered from a development delay, later tests at the centre however indicated a neuromotor dysfunction. In fact this discrepancy was one of the reasons why the therapist started with the study.

10 A similar study on the Chinese health care system was conducted by Grogan (1995). The author focused on growing inequalities regarding health care accessibility and health insurance coverage among rural and urban residents as well as population sub-groups of different socio-economic statuses. One of the main reasons was the implementation of far-reaching economic reforms in China excluding the poor from health care insurances.

11 A study by Raghupathy (1996) supports these findings. The author points out that the distance to health care facilities and educational level are important determinants of maternal health care use in Thailand.

12 As Stephens and Harpham (1992, 273) moreover point out, the "existence of certain environmental interventions, for example water supplies or sanitation, has no impact on health. It is their use which has a impact on health." Any improvements of the physical environment are futile if there is no adequate health education, e.g. relating to hygiene behaviour.

13 Shums are usually located in such areas as quarters with better environmental conditions are generally used for more profitable purposes.
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Public Health Research on Determinants and Health Outcomes of Urban Violence: An Overview

Birgit Cornelius-Taylor

1 Introduction

Violence is a very complex phenomenon with far-reaching socio-psychological, socio-economic, and socio-political consequences for every society. It takes many diverse forms which have different backgrounds and explanations. However, still little is known about the structures of violence. Although scientific publications on theoretical explanations are abundant, and although there are numerous statistical surveys on violence-induced deaths and injuries, one must recognize that only criminologists and sociologists have to date conducted these studies. Public health approaches to explaining the multidimensional determinants of violence are rare, and research into the associations between violence and health is clearly neglected.

According to the MEDLINE data bank of the U.S. National Library of Medicine, a total of 15,500 studies on the subject of violence were published between January 1990 and December 1999. However, a mere 686 articles of this number focus on urban violence (figure 1), ten research papers mention determinants of urban violence, and only 19 include the terms "health outcomes" and "urban violence".

This extreme disproportion reveals that little attention is paid to urban violence and its health-related consequences for urban populations. This is all the more striking when looking at WHO statistics on mortality, showing that violence has meanwhile become the third most frequent cause of death in males and females between 15 and 44 years of age (table 1).

Globally, the number of violence-induced injuries and deaths is increasing to such a degree that violence will soon be the most frequent cause of illness and premature death, ranking even before infectious diseases (WHO 1998c).

In South Africa, violence is already the leading cause of death due to injuries, which in turn are generally the second most frequent cause of death. In 1996, the homicide rate amounted to 61 per 100,000 inhabitants and placed South Africa among the most violent countries in the world (Butchart and Peden 1997; see also Cornelius-Taylor et al. in this volume). In São Paulo, homicide is considered the most serious health problem of
males between 15 and 44 years of age (Akerman 1998), and in Brazil, violence has generally become the second most frequent cause of death (39,000 homicides annually) after heart diseases.

Figure 1: Number of published research papers focusing on "violence" and "urban violence", 1990-1999

Source: MEDLINE; own compilation.

These numbers are not only alarming. In terms of public health research, they also indicate that the systematic investigation of determinants and consequences of urban violence is an urgent issue deserving high priority. The urban environment can be considered a fertile soil in which the diverse forms of violence can grow. Cities are centres of political, social and economic processes, hence they are meeting places for people of varying cultural, ethnic and religious origins. Because of relative anonymity, life in big cities also attracts criminal offenders and delinquents. Moreover, city streets are ideal places for uprisings, demonstrations and revolutions (Oloruntimehin 1996).
Table 1: Leading causes of death by age groups (worldwide, both sexes), 1998

<table>
<thead>
<tr>
<th>Rank</th>
<th>0-4 yrs</th>
<th>5-14 yrs</th>
<th>15-44 yrs</th>
<th>45-59 yrs</th>
<th>60 yrs +</th>
<th>All ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pennatal conditions</td>
<td>Acute lower respiratory infections</td>
<td>HIV / AIDS</td>
<td>Ischaemic heart disease</td>
<td>Ischaemic heart disease</td>
<td>Ischaemic heart disease</td>
</tr>
<tr>
<td></td>
<td>2,155,000</td>
<td>213,429</td>
<td>1,629,726</td>
<td>887,146</td>
<td>6,239,562</td>
<td>7,375,408</td>
</tr>
<tr>
<td>2</td>
<td>Acute lower respiratory infections</td>
<td>Malaria</td>
<td>Road traffic injuries</td>
<td>Cerebrovascular disease</td>
<td>Cerebrovascular disease</td>
<td>Cerebrovascular disease</td>
</tr>
<tr>
<td></td>
<td>1,850,412</td>
<td>209,109</td>
<td>600,312</td>
<td>600,854</td>
<td>4,247,080</td>
<td>5,106,125</td>
</tr>
<tr>
<td>3</td>
<td>Diarrhoeal diseases</td>
<td>Road traffic injuries</td>
<td>Interpersonal violence</td>
<td>Tuberculosis</td>
<td>Chronic obstructive pulmonary disease</td>
<td>Acute lower respiratory infections</td>
</tr>
<tr>
<td></td>
<td>1,814,158</td>
<td>161,956</td>
<td>509,844</td>
<td>407,737</td>
<td>1,974,652</td>
<td>3,452,178</td>
</tr>
<tr>
<td>4</td>
<td>Measles</td>
<td>Drowning</td>
<td>Self-inflicted injuries</td>
<td>Trachea / bronchus / lung cancers</td>
<td>Acute lower respiratory infections</td>
<td>HIV / AIDS</td>
</tr>
<tr>
<td></td>
<td>887,671</td>
<td>157,573</td>
<td>508,821</td>
<td>305,982</td>
<td>1,184,598</td>
<td>2,285,229</td>
</tr>
<tr>
<td>5</td>
<td>Malaria</td>
<td>Diarrhoeal diseases</td>
<td>Tuberculosis</td>
<td>Cirrhosis of the liver</td>
<td>Trachea / bronchus / lung cancers</td>
<td>Chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td></td>
<td>793,368</td>
<td>133,893</td>
<td>427,314</td>
<td>284,117</td>
<td>889,873</td>
<td>2,249,262</td>
</tr>
<tr>
<td>6</td>
<td>Congenital abnormalities</td>
<td>War injuries</td>
<td>War injuries</td>
<td>HIV / AIDS</td>
<td>Tuberculosis</td>
<td>Diarrhoeal diseases</td>
</tr>
<tr>
<td></td>
<td>404,849</td>
<td>57,285</td>
<td>372,935</td>
<td>214,571</td>
<td>570,513</td>
<td>2,219,032</td>
</tr>
<tr>
<td>7</td>
<td>HIV / AIDS</td>
<td>Nephritis / nephrosis</td>
<td>Ischaemic heart disease</td>
<td>Liver</td>
<td>Stomach cancers</td>
<td>Prenatal conditions</td>
</tr>
<tr>
<td></td>
<td>349,985</td>
<td>44,640</td>
<td>244,556</td>
<td>205,394</td>
<td>551,527</td>
<td>2,155,000</td>
</tr>
<tr>
<td>8</td>
<td>Pertussis</td>
<td>Congenital abnormalities</td>
<td>Cerebrovascular disease</td>
<td>Stomach cancers</td>
<td>Diabetes mellitus</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td></td>
<td>345,771</td>
<td>43,056</td>
<td>195,983</td>
<td>205,212</td>
<td>426,964</td>
<td>1,498,061</td>
</tr>
<tr>
<td>9</td>
<td>Tetanus</td>
<td>Inflammatory cardiac disease</td>
<td>Cirrhosis of the liver</td>
<td>Chronic obstructive pulmonary disease</td>
<td>Colon / rectum cancer</td>
<td>Trachea / bronchus / lung cancers</td>
</tr>
<tr>
<td></td>
<td>302,688</td>
<td>40,802</td>
<td>142,445</td>
<td>203,192</td>
<td>424,463</td>
<td>1,244,407</td>
</tr>
<tr>
<td>10</td>
<td>Protein / energy malnutrition</td>
<td>HIV / AIDS</td>
<td>Drowning</td>
<td>Self-inflicted injuries</td>
<td>Cirrhosis of the liver</td>
<td>Road traffic injuries</td>
</tr>
<tr>
<td></td>
<td>214,717</td>
<td>39,042</td>
<td>141,922</td>
<td>175,478</td>
<td>355,615</td>
<td>1,170,684</td>
</tr>
</tbody>
</table>

Source: WHO (1998a)
2 Definitions of violence

In the scientific literature, there is a number of different definitions and sub-definitions which refer to the varying dimensions of violence. Violence includes both physical and psychological components, affects individuals or groups of people, and causes injury either through acts or omissions on the physical, as well as mental and emotional level. The following general definition can be found in several academic texts:

"Violence is the intentional use of physical force or power, threatened or actual, against oneself or another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation" (WHO 1998c).

However, certain forms of violence – and particularly their background – cannot be sufficiently explained using this definition. Physical force or power plays a fundamental role in most acts of violence; the offenders’ motives however are often difficult to understand. For instance, many suicide attempts do not occur with the intention to die or to injure oneself, but are rather to be regarded as cries for help. For this reason, many papers on this subject describe in detail the aim and type of violence, such as the United Nations Declaration on the Elimination of Violence against Women, which particularly focuses on violence against women, defined as:

"Physical, sexual and psychological violence occurring in the family, including battering, sexual abuse of female children in the household, dowry related violence, marital rape, female genital mutilation and other traditional practices harmful to women, non-spousal violence and violence related to exploitation; physical, sexual and psychological violence occurring within the general community, including rape, sexual harassment and intimidation at work, in educational institutions and elsewhere, trafficking in women and forced prostitution; physical, sexual and psychological violence perpetrated or condoned by the state, wherever it occurs" (WHO 1997).

It is interesting to note that people affected – be it as victim, offender or witness – interpret violence from a perspective which partly deviates from official scientific definitions and to a high degree depends on personal experiences. In a qualitative study, Fullilove et al. (1998: 925) show that violence is sometimes described as an economic problem. One of the respondents interviewed said, "[...] the violence of people put at the mercy of a system that's run for profit instead of people's needs. I think of people working full-time jobs at minimum wage that is still not enough for them to buy food or pay for an apartment. The sort of violence that's trumped up by
politicians to get votes is sort of a smoke screen for keeping people's attention off of what is really the problem at hand." A man who grew up in a violent home and who had been abusive to his own wife and children said, "maybe because I am very violent, I see violence everywhere."

3 Forms of violence

Violence occurs on various levels and in many different forms, which can be divided into three main categories:

Self-directed violence is intentionally self-destructive behaviour, such as suicide, attempted suicide or self-mutilation by psychologically sick people not intending suicide.

Interpersonal violence comprises all forms of violence committed amongst individuals, and is neither organized nor planned by social or political groups. It is characterized by a typical victim-offender relationship to be seen above all in domestic violence (violence against women, child abuse etc.), and always creates a sentiment of threat and fear irrespective of whether or not the offender is an acquaintance or a stranger.

Organized violence is violent behaviour planned by political or social groups, in order to enforce various social, economic or political aims. This includes war and all other connected military actions, but also any violent political uprisings, street fights, and fights among street gangs (figure 2).

The division into different forms of violence essentially depends on the researcher's individual scientific background, the focus of the study, the discipline, but also the historical background. Two studies may serve as an example:

1) Gizewski and Homer-Dixon (1995) suggest a way of particularly classifying urban violence.

- Political violence comprises all acts of violence directed against or executed by a state including uprisings, rebellions, revolutions, assassinations and violence against civilians and prisoners, e.g. in concentration camps and in the form of torture etc. Political violence is not only restricted to urban areas, even if planned and carried out there, and even if people in cities are often more affected than those in rural areas.

- Acts of violence falling into the category of communal and ethnic violence stem from ethnic, religious or similar conflicts among rival groups. In Karachi, Pakistan, 95% of the victims who die due to acts of violence between Muslims and Hindus come from the urban areas of the capital.
Figure 2: An overview of types of violence

Self-directed violence
  ▼
  Attempted suicide
      ▼
      Mutilation
          ▼
          Suicide

Interpersonal violence
  ▼
  Domestic violence
  ▼
  Violence against women
      ▼
      Child abuse
          ▼
          "Traditional" violence
              ▼
              Burning of brides/widows

  ▼
  Workplace violence
      ▼
      "Mobbing"

  ▼
  Sexual violence
      ▼
      Genital mutilation

  ▼
  Adolescent violence

  ▼
  Social violence

Organized violence
  ▼
  Economic violence
      ▼
      Political violence
          ▼
          War
          ▼
          Torture

Source: own compilation
• **Criminal violence** refers to wanton acts of destruction, armed attacks, bodily injuries, brawls and murder committed by individuals or groups. The backgrounds of these acts of violence are of a varying nature, but, as a rule, they mirror the alienation caused by large cities, and the disruption of moral rules in society.

2) Minayo (1990, cited in Barrata et al. 1998) proposes another classification in her paper on adolescent violence in Brazil:

• **Structural violence**: arises from the social system itself, due to racial, gender, and age-specific discriminations, as well as inequalities among social classes;

• **Violence as resistance**: organized by groups to overcome injustice and exploitation;

• **Violent crime**: includes armed robbery, looting, kidnapping, alcohol and drug abuse etc.

This categorization is based on Brazil's historical context and illustrates the multitude of possibilities to classify the various forms of violence. However, for an international comparison of urban violence, a worldwide uniform, standardized classification is indispensable.

4 Determinants of violence

4.1 Urbanization

In some studies, violence is directly regarded as an outcome of the process of urbanization. Data and statistics indicate that the population growth in urban centres can be directly linked to an increased number of acts of violence. Migration from rural to urban areas plays an important role here. Breaking away from traditional social and family structures initially causes uncertainty, which can lead to various socio-psychological consequences, ranging from social disorientation and alienation to isolation, and ultimately to frustration. The rapid influx of migrants and their respective needs, especially in the cities of "Third World" countries, cannot be adequately dealt with by the public sector, so that the migrants' economic and social deprivation quite often leads to outbreaks of different forms of violence (Gizewski and Homer-Dixon 1995)

According to a theory developed by Wayne (1969), it is just unfulfilled economic expectations that motivate migrants to join radical political groupings, which believe that violent actions will help improve their present situation (figure 3).
Figure 3: Chain of cause and effect from migration to violence

Rapid rural-urban migration → Primary group breakdown → Migrant disorientation → Integration into radical movements → Violence

(cultural conflict) (normlessness)


However, this theory is not undisputed and has in part been heavily criticized over the past years. Researchers particularly emphasized that the interrelations between urbanization, migration, and violence are essentially more complex than Wayne had formulated in 1969.

The rapid growth of urban centres remains, however, one of the many determinants of urban violence. If urbanization is not the direct cause for violence, then it is the rapid population growth in today's mega-cities, which entail much higher risks of involvement in violence in one form or another than in rural areas.

4.2 Poverty

Poverty is often mentioned as a fundamental determinant of urban violence. Yet poverty, like violence, is such a multi-layered problem that it is impossible to capture its overall dimensions.

In their study "Urban Poverty and Violence in Jamaica", Moser and Holland (1997) try to illuminate the relationship between poverty and different forms of violence in and around Kingston, the capital of Jamaica. Their results clearly illustrate that poverty not only results from limited financial means. Rather, poverty is much more far-reaching. Dimensions which generally have to do with making one's living - such as work, mobility, house and land ownership - are all factors which, in their absence, might lead to poverty.

Particularly poverty and work seem to be closely related. Many of the young people between 15 and 29 years of age in rural areas do not earn enough or are unemployed and, hence, move to the nearest large city in the hope of a job and a better standard of living. While rural life is generally very simple and modest, migrants in the city are confronted with an extreme contrast between rich and poor. Additionally, the material wealth of the affluent symbolizes success. The unattainable desires for formerly unimportant luxury items, societal pressure through the community in general as well as closer peer groups, and the high rate of unemployment among migrants are all factors promoting crime and violence, above all among adolescents and young adults (Crime Information Analysis Centre 2000).
These examples show that poverty cannot be regarded as a direct determinant of violence. The issue of poverty is as complex as violence, which is influenced by many different factors, and which can neither be grasped nor measured as an one-dimensional determinant. The factors leading to poverty have to be examined closer and in more detail. Accordingly, a WHO report states: "Although it is widely accepted today that there is no single direct relationship between poverty and violence, a close association does indeed exist between inequity and violence. It is not that poor people are intrinsically more violent than other members of society, but, rather, that the inequalities they suffer, combined with the disempowerment, fear, insecurity, frustration and depression these cause, are contributing factors to violence behaviours" (WHO 1998b).

4.3 Employment

The relationship between employment status, i.e. unemployment, and violence is obvious: Most of the studies focusing on determinants of violence refer to the importance of regular employment and, thus, of regular income. Also those affected – both victims offenders – consider unemployment one of the most crucial risk factors for violence. The lack of sufficient income not only leads to economic difficulties, but also to psychological problems such as inferiority complexes, anger and aggression, disappointment and frustration, depression and boredom. Such psychological conditions are likely to promote violence in families, between partners, and among street gangs.

Moser and Holland (1997) interviewed males and females from various neighbourhood districts in Kingston, Jamaica, about their opinions on the causes for violence and which problems they believe deserve high priority for political action in their respective neighbourhoods. Most of the respondents indeed considered unemployment one of the most urgent problems, having a substantial effect on higher violence rates (table 2).

In Kingston and its environs, employment opportunities for males are, to a large degree, limited to shorter contracts or seasonal work. The limited number of jobs heavily promotes competition and violent fights among local gangs. It is generally believed that the availability of more job opportunities averts violence (figure 4).
Table 2: Most urgent problems of Kingston inhabitants by district and community (percentages)

<table>
<thead>
<tr>
<th>Problem</th>
<th>District and community</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inner-city Kingston (Greenland)</td>
</tr>
<tr>
<td>Crime and violence</td>
<td>20.0</td>
</tr>
<tr>
<td>Work: access to employment, access to training</td>
<td>40.0</td>
</tr>
<tr>
<td>Human capital: food, health, education</td>
<td>20.0</td>
</tr>
<tr>
<td>Physical infrastructure: housing, water, sanitation, electricity, transport</td>
<td>10.0</td>
</tr>
<tr>
<td>Household relations: teenage pregnancy, contentment with family relations, family structure breakdown</td>
<td>0.0</td>
</tr>
<tr>
<td>Social capital: police brutality, prejudices, political representation, equality in court</td>
<td>10.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Moser and Holland (1997).

4.4 Education

Undoubtedly, there is an association between the level of education and urban violence. However, also this determinant has to be seen in its social context. Schooling and job training are the most important prerequisites for better chances on the job market. Even in large cities providing a multitude of employment opportunities, people with little or no education will have considerably greater difficulties to get a job, as there is more competition compared to rural areas. As already mentioned above, the chance to earn a regular income can be considered an important contribution to the prevention of violence.

A group of young men from Greenland / Kingston developed the following figure to illustrate how they view the consequences of lacking or
poor education (figure 5); in their opinion, the lack of education is closely linked with frustration, poverty, and violence.

**Figure 4: Causal impact model of lacking employment opportunities for men, developed by a group of young men in Park Town, Kingston**

![Diagram showing the causal impact model of lacking employment opportunities for men, developed by a group of young men in Park Town, Kingston.](image)


### 4.5 Mobility and infrastructure

Mobility – be it with one's own vehicle or by public transport – can at least be regarded as an indirect determinant of violence. Poorer neighbourhood districts or those with high crime and violence rates are often not served by public transport (for reasons of safety, lack of financial resources, due to political reasons), so that the opportunities to find jobs in other city districts is complicated or even hindered. In this context, the inhabitants of Campbell Town in Kingston, Jamaica, serve as a typical example. Even in broad daylight, they are not able to get a taxi, nor can they use public transport, as rival gangs infest the area. Many women do not want to work in neighbouring quarters, because they are afraid of violent attacks on the streets (Moser and Holland 1997).

If there are no chances to get a job due to spatial inaccessibility, those affected do not only suffer from the consequences of unemployment, but also of considerable stigmatization. In poorer neighbourhood districts,
many inhabitants believe that people and the police do not respect them and that they are labeled criminals simply because the violence rate in their quarters is higher than in others. Such stigmatization further promotes feelings of hopelessness and isolation; frustration, resignation, and anger increases, and may result in violent outbreaks.

Figure 5: Causal impact model of lacking education, developed by a group of young men in Greenland, Kingston

Source: Moser and Holland (1997).
4.6 Accommodation and living conditions

Also living conditions of people in various quarters of mega-cities have been identified as a determinant of violence. Living conditions are directly associated with poverty.

Table 3: Demographic and risk factor information by types of dwellings in two different Johannesburg districts

<table>
<thead>
<tr>
<th>Variable</th>
<th>Informal A</th>
<th>Informal B</th>
<th>Houses A</th>
<th>Houses B</th>
<th>Flats A</th>
<th>Flats B</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of dwellings included in study</td>
<td>174</td>
<td>317</td>
<td>124</td>
<td>307</td>
<td>53</td>
<td>100</td>
</tr>
<tr>
<td>Total No of residents</td>
<td>669</td>
<td>998</td>
<td>701</td>
<td>1529</td>
<td>289</td>
<td>543</td>
</tr>
<tr>
<td>Average No of residents</td>
<td>3.85</td>
<td>3.15</td>
<td>5.65</td>
<td>4.98</td>
<td>5.45</td>
<td>5.43</td>
</tr>
<tr>
<td>Male-female Ratio</td>
<td>52.48</td>
<td>52.48</td>
<td>49.51</td>
<td>48.52</td>
<td>53.47</td>
<td>51.49</td>
</tr>
<tr>
<td>Average age (oldest 10%)</td>
<td>42</td>
<td>43</td>
<td>55</td>
<td>54</td>
<td>53</td>
<td>46</td>
</tr>
<tr>
<td>Adult education (mean)</td>
<td>5.5</td>
<td>5.5</td>
<td>5.7</td>
<td>5.7</td>
<td>6.4</td>
<td>6.7</td>
</tr>
<tr>
<td>Average income (Rand, mean)</td>
<td>744</td>
<td>693</td>
<td>1042</td>
<td>1.070</td>
<td>1.416</td>
<td>1.352</td>
</tr>
<tr>
<td>% employed males</td>
<td>62</td>
<td>61</td>
<td>48</td>
<td>50</td>
<td>44</td>
<td>51</td>
</tr>
<tr>
<td>% employed females</td>
<td>28</td>
<td>45</td>
<td>38</td>
<td>35</td>
<td>42</td>
<td>39</td>
</tr>
<tr>
<td>Transience (stay here, yrs)</td>
<td>2.9</td>
<td>2.6</td>
<td>16.1</td>
<td>12.3</td>
<td>14.7</td>
<td>10.4</td>
</tr>
<tr>
<td>% consumption of alcohol¹</td>
<td>43.7</td>
<td>38.8</td>
<td>31.5</td>
<td>31.7</td>
<td>34.3</td>
<td>28.9</td>
</tr>
<tr>
<td>% use of alcohol in the morning¹</td>
<td>12.4</td>
<td>14.3</td>
<td>1.9</td>
<td>9.2</td>
<td>2.3</td>
<td>1.3</td>
</tr>
</tbody>
</table>

¹ Adults aged 21-65 yrs
Source: Butchart et al. (2000).
Location, address, and the type of construction of apartment buildings or dwellings are indicators of their occupants' socio-economic status contributing to a deeper understanding of the mechanisms of violence. In a qualitative study, Butchart et al. (2000) interviewed people from various quarters and types of dwellings in two different neighbourhood districts of Johannesburg, South Africa, on risk factors associated with violence (table 3). The people interviewed either lived in four-room council houses ("Houses A" and "B"), in flats in high density council apartment blocks ("Flats A" and "B") or in so-called informal settlements ("Informal A" and "B"), for the most part illegal corrugated iron huts (Butchart et al. 2000).

The main findings can be summarized as follows: Residents in informal settlements consume clearly more alcohol (particularly in the morning), the average length of stay is the lowest, their per-capita-income is almost half of that of individuals living in council apartments, and their educational level is lower than that of the occupants of other types of accommodation.

**Figure 6: Number of injuries per 100,000 inhabitants by types of dwellings in Johannesburg districts, 1996**

![Graph showing number of injuries per 100,000 inhabitants by type of accommodation]

Source: Butchart et al. (1998).

A comparison of the number of violence-induced injuries (figure 6) clearly shows that living conditions, poverty, and violence are interlinked.
Not only the number, but also the form of violence varies by the type of accommodation. A considerably higher rate of violence occurs in informal settlements than in the two other types of accommodation. Such violent incidents however are almost completely confined to interpersonal forms, while self-mutilation, suicide or attempted suicide rarely takes place. By comparison, the overall violence rate is much lower in council housing accommodations, but forms of self-directed violence occur much more frequently (Butchart et al. 1998).

4.7 Family structures

The extent to which occurrences of violence are associated with family structures – be it extended families, nuclear or single-parent families – cannot be clearly determined. In extended Indian families, even today several thousands of young women die each year shortly after their wedding due to an "accident in the kitchen". Although forbidden by law, they are poured with kerosene and set on fire just to get their dowry after death. Dowry-related violence in India is seldom investigated by the police; in official statistics, it is thus often registered as accidental (Fischbach and Herbert 1997). In small families – irrespective of residential area and socio-economic status – violence rather occurs in the form of conjugal assaults, rape, and sexual or physical abuse of children.

It is interesting to note that in Germany, many single-parent families live in city districts with high violence rates (see Strohmeier in this volume). However, this does of course not mean that single mothers are violent offenders. As many single-parent families belong to socially and economically deprived population sub-groups that, particularly in large cities, are resident in rather underprivileged urban "problem-quarters", the aforementioned association can be traced to environmental factors and socio-economic problems in such districts conducive to the occurrence of urban violence.

According to the scientific literature, family structures can thus not be linked to violence directly. Rather, they can be regarded as an indicator of living conditions that are more or less associated with a higher risk of violence. However, family structures possibly play an important role as determinants of different forms of domestic violence.
4.8 Socialization

In their article "Violence Begins at Home", Hall and Lynch (1998) vividly describe the impact of violence on the family. Children growing up in violent households are three to ten times more endangered to get injured or abused either directly or indirectly when, for instance, attempting to help their mother. The authors moreover show that in more than 60% of child abuse cases, the mother had been abused as well.

Butchart et al. (1996) came to similar conclusions in a study on the risk factors of domestic violence in South Africa: Two thirds of the offenders, and 23% of the victims were also abused as children. According to Ntuli (1998), abused children are generally more likely to become violent later in their lives than non-abused individuals. Either as victims or witnesses, they learn that violence is not only a "normal" component of family life, but also an acceptable way of solving conflicts (see also Köhler in this volume). Moreover, they are likely to develop a biased understanding of "typical" male and female roles, which they will then put into practice in later life.

According to Miller et al. (1999), not only experiences of family violence, but also witnessing violent conflicts in other social environments increases the likelihood that children develop anti-social behaviour, which in turn depends to a high degree on the potential of family conflicts.

4.9 Role and status of women

In many societies, girls and women are considered subordinate to men and less worth than their male counterparts. This becomes e.g. evident in Asian countries like Bangladesh, China, Afghanistan and India, where many people wish to have only male offspring. The birth of a girl is regarded as the mother's failure, and female newborns are often drowned or suffocated directly after birth. Moreover, the intentional burning of young brides after wedding to get their dowry, as well as the killing and joined cremation of widows after their spouses' death are acts of violence tolerated by society simply because they are "just" women.

In this context, just being a woman means to be potentially endangered to become a victim of violence. Large parts of the population do not label violence against women as such. Violence is embedded in a cultural context, and thus, often not only under-estimated, but even tolerated.

Another example is female circumcision, a rite still practised in many parts of the African continent. Circumcision, better known as female genital mutilation (FGM), occurs in many different forms, causes irreversible
damages to female genital organs, and considerably affects their function (Ortiz 1998).

According to WHO estimations, there are approximately 150 million genitaly mutilated girls and women in East, West and Central Africa, with approximately two million females to be added annually (WHO 1997). FGM does not fall into the category of acts of violence considered as typical urban violence, yet, interestingly, increasing urbanization plays an important role as a determinant. In many African countries, men often migrate without their families to urban areas in search of work and to learn new and better skills. Depending on the level of education, many of these men consider whichever form of female circumcision as the only possibility to control their wives’ sexuality and thus, consider FGM a guarantee for stable family life, despite or even due to the geographical distance. As in centuries gone by, the women left behind bring up the children and cultivate the farmland. As most of them have no access to education and job training, their only "career" is that of a housewife, the only way to receive social recognition. This is the reason why many women do not resist female circumcision. Unfortunately, urbanization further increases the gap between the men working in the city and the women living in rural areas, and counteracts efforts to develop educational measures against FGM.

FGM is a custom determined through several factors depending on social norms and level of education. Women from educated families are much less affected from circumcision than those deprived of education and job training (El Dareer 1983).

4.10 Alcohol

The relationship between alcohol and violence is a controversially discussed subject in the scientific literature. While many authors believe that alcohol directly increases aggression, leading to violent behaviour (cf. Collins 1988; Lindquist 1991, Murdoch et al. 1990), others are sceptical about direct impacts of alcohol on violent behaviour (cf. Martin and Bachman 1993). A third point of view, apparently shared by the majority of scientists, is that people are more prone to become aggressive under the influence of alcohol, especially when found in aggravating conflict situations (Taylor and Chermack 1993; Spunt et al. 1994). However, regardless of this basic question concerning cause and effect, epidemiological studies show that both – i.e. alcohol consumption and the use of violence – mostly occur simultaneously.

According to the Cape Metropolitan Study of South Africa conducted between 1990 and 1992, 63.6% of the patients injured by violence were
drunk, and 73.3% of victims found dead had a blood alcohol concentration of at least 0.08 g per 100 ml (Gilbert 1996). Autopsy results from the 1994 Capetown study show that 55.7% of victims of violence had a blood alcohol level of more than 0.1 g per 100 ml, and 77.1% of these victims were killed through the use of sharp objects (Rocha-Silva and Ryan, undated).

In another study focusing on risk factors of domestic violence, it was found that only 22.7% of the victims, but 63.7% of the offenders had consumed alcohol (Kyriacou et al. 1999).

Surveys addressing the time patterns of occurrences of violence reveal that almost 42% of all incidents take place on weekends, especially during the night from Saturday to Sunday, i.e. when alcohol consumption is at its peak (Gilbert 1996; Van der Spuy 1999).

Even if the interrelationships between violence and alcohol are discussed controversially, there is undoubtedly agreement that alcohol consumption can increase aggression and one's readiness to employ violence, particularly in situations characterized by frustrations and conflict. Alcohol can therefore definitely be regarded as a risk factor of urban violence.

### 4.11 Drugs

In the scientific literature, alcohol and drug consumption is often discussed simultaneously. However, impacts of the use alcohol and substances on violence differ considerably. Taylor and Chermack (1993) e.g. show that alcohol and Diazepam tend to increase the level of aggression, while neither marijuana nor amphetamines have such effects.

In order to consider substance abuse a determinant of urban violence, it is also necessary to agree upon a clear definition of "drugs" which may vary markedly due to different social and legal norms. The consumption of marijuana e.g. is not prohibited in all countries; in Jamaica, the smoking of "ganja" is actually seen as a way of relaxing and coping with feelings of hopelessness and frustration (Moser and Holland 1997).

In contrast to alcohol, the acquisition of drugs is far more difficult and much more expensive. Many drug addicts (especially consumers of so-called "hard" drugs) need ever more doses in ever shorter intervals; however, at some point they will generally no longer be able to pay for them. Instead, drug addiction often forces those affected to use illegal means to get their substances, often in a milieu characterized by crime and violence.

Another aspect to be mentioned in the context of drug abuse and violence is traffic in drugs. Dealing with illegal drugs is a lucrative source of income, many rival gangs fight for. Traffickers in drugs are therefore often organized in an established system of gangs, which secure their territory in
different neighbourhoods and, in gang battles, also fight for traffic and dis-tribution of drugs. Such fights frequently turn into extremely brutal drug wars.

4.12 Possession of firearms

The use of firearms and related injuries or deaths is addressed in most of the published research papers on (urban) violence. However, only few studies explicitly focus on the possession of firearms as a possible determinant of urban violence. Despite apparently close associations, opinions on causal relations differ.

In a survey on 1,500 urban school children, Arria et al (1995) found that the possession of rather light weapons used for defence such as sticks, leads to behavioural changes in so far as it lowers inhibition towards the use of more harmful and deadly weapons, like knives and firearms, and increases aggression. According to Fine et al. (1994) however, a direct link between easier access to firearms and increasing numbers of homicide cases among young black males between 15 and 25 years of age could not be proved.

In their study "In the Safety of Your Own Home", Azrael and Hemenway (2000) come to the conclusion that to date it has not been investigated yet if the possession of firearms constitutes a threat to the own family. Surveying 1,906 U.S. citizens, the authors show that legal firearms, even if initially used to defend oneself, are often employed to threaten, intimidate or possibly injure family members in conflict situations.

Assuming that firearms serve to execute whichever form of violence – be it for defence, intimidation or attacks – then their possession cannot be excluded as an important determinant.

4.13 Religion and ethnic groups

The extent to which religion has an impact on the emergence of vio-lence, especially in big cities, is a neglected topic in the scientific literature. Religious, ethnic, and racial prejudices frequently lead to violent confronta-tions worldwide, particularly in large cities where a multitude of different cultures and ethnic groups live crowded together. Although people of the same descent or confession prefer to live close to each other in order to provide support and protection, such ethnic or religious homogeneous neighbourhoods may constitute ghettos which engender further prejudices and violence as well. It is a typical human characteristic to blame others for one's own problems. For example, in Washington Heights, U.S.A., some
neighbourhoods face extremely violent gang fights so that many inhabitants do not dare leave home. The reasons for this kind of violence are most commonly not seen in a more complex social context, but in other ethnic groups, such as the "Dominicans", who are held responsible for this situation. These, in turn, blame the society not to distinguish between a whole community and the actions of a few (Fullilove et al. 1998). Other – more grievous – examples are religious and ethnic conflicts such as those occurring in the 1980s in Colombo (Sri Lanka) and Delhi (India) where minorities were persecuted and massacred. Such ethnic riots are generally driven by religious prejudices and political manipulations. In Sri Lanka e.g., both the Sinhalese and Tamil were armed, mobilized, and empowered by certain government politicians and their retinues (Tambiah 1997).

Religion per se certainly cannot be regarded as a factor causing violence. It is true that the persecution of heterodox minorities is often justified by means of prevailing religious beliefs, but neither the Bible, nor the Koran, nor any other religious scripture of the large world religions generally and explicitly encourages to use violence.

In scientific studies, religion and ethnicity can only be considered determinants of urban violence against the background of the respective social context, for it is not the people's confession or origin that "causes" violence, but the clash of different religions and cultures, accompanied by partially deeply rooted prejudices and hatred.

5 Health outcomes of violence

According to the MEDLINE data bank (U.S. National Library of Medicine), a total of only 19 papers were published in 1990 containing the terms "urban violence" and "health outcomes". However, in none of these articles, the topic "Health Outcomes of Urban Violence" is addressed, and only a few describe the effects of violence with regard to certain social groups within urban areas.

Of course, health outcomes of urban violence cannot be distinguished from those of violence in general. In the following sections, health effects of violence are therefore discussed in a rather general way, without taking into consideration whether the violent act occurred in urban areas or not.

5.1 Physical traumata

Almost any study focusing on health outcomes of violence refers to the high injury and mortality rates, mostly in order to delineate the extent of violence. Upon closer examination however, it becomes evident that vio-
lence-induced injuries not only differ in kind and character. Patterns of violence-related health outcomes are generally distinct from accidental injuries.

According to Brink et al. (1998), injuries of victims of violence can be classified into various categories. The parts of the body most frequently injured are the head (in 73% of female victims and in 78% of male victims), the neck, and face. In addition, an above-average number of victims of violent assaults display lesions on the forearms and the outside of the right hand.

Also conspicuous are the types of injuries: While the number of contusions is significantly higher in females, male victims more frequently suffer from open wounds such as cuts and lacerations. In general, men are mainly injured through hits, kicks, and the use of broken glasses or bottles, while women are predominantly exposed to blunt violence (cf. Brink et al. 1998).

Similar findings were presented by Muellemann et al. (1996), and Ochs et al. (1996). Moreover, the authors independently of each other found that injuries of the head, neck, and face could be considered markers of domestic violence. Perciaccante et al. (1999) argue that such injuries can indeed be indicators of domestic violent assaults; as markers however, they are not sufficiently valid, even if the victim's age is additionally considered.

Further traumata that clearly indicate acts of violence are injuries (particularly cuts) of the forearms, which can be regarded as typical self-defence wounds: Almost half of all victims protect themselves from punches, kicks, and injuries from sharp or blunt objects by raising their forearms (Katkici et al. 1994).

There are also certain injuries in children that arouse urgent suspicion of abuse and maltreatment. Diagnoses range from injuries of the soft parts, weals, multiple fractures of the skull, and choking marks to haematomata on the hind-car region and the inside of thighs, and venereal diseases as well as genital injures (Beintker et al. 1999; Trube-Becker 1987). More than half of all victims suffer from severe and / or chronic physical abuse (Thyen et al. 2000).

5.2 Mental and emotional traumata

Apart from visible physical effects of violence, many victims also suffer from psychological and emotional disorders generally known as Post Traumatic Stress Disorder (PTSD). PTSD is a complex of symptoms comprising several psychological and psycho-somatic disorders which, as a consequence of a life-threatening experience, leads to feelings of fear, helplessness and horror in victims and / or other persons involved (American
Psychiatric Association 1994). Such traumatic experiences include e.g. war and captivity, violent personal attacks, taking of hostages, torture, and also natural disasters, serious traffic accidents, and the diagnosis of a life-threatening disease (Bengel and Landji 1996).

PTSD can be caused in situations in which:
1) one's own life or health is endangered;
2) one witnesses the violent attacks resulting in injury or death of another person;
3) a close friend or relative is exposed to such a traumatic experience.

Accordingly, people suffering from PTSD can be classified into primary, secondary, and tertiary victims. Primary victims are directly exposed to an act of violence, secondary victims witness the incidence or are otherwise involved, and tertiary victims are those indirectly exposed to the traumatic experience, e.g. as family members (Mitchell and Everly 1993).

According to the American Psychiatric Association (1994), the symptoms of PTSD include recurring memories of the traumatic experience, avoiding behaviour, and increased vegetative irritability. In detail, the following symptoms and coping strategies may occur:

a) Reliving of the traumatic experience in one or several of the following ways:
   • recurring frightening memories of the experience in the form of images, thoughts, feelings, flashbacks (in the case of children, the repeated "performance" of certain scenes or aspects of the incident);
   • recurring dreams and/or nightmares of the incident;
   • great despair when confronted with items which in some way or another are reminiscent of the traumatic experience;

b) Avoidance of stimuli, which can in one way or another be associated with the trauma:
   • avoidance of thoughts, feelings or conversations reminiscent of the trauma;
   • avoidance of activities, locations or people that could rekindle memories;
   • inability to retell important aspects of the trauma;
   • reduced interest or apathy, feelings of isolation;
   • reduced sensitivity (inability to love);
   • negative view of one's own future.

c) Continuing symptoms of increased irritability in at least two of the following ways:
   • disturbed sleep or insomnia;
- hyper-irritability or outbursts of rage;
- concentration disorders;
- hyper-vigilance (excessive vigilance / attention / anxiety);
- excessive nervousness.

Although these reactions and symptoms are unpleasant and irritating, they are viewed as normal consequences of an abnormal experience. Initially, they may help strengthen the individual's attention, thereby avoiding other dangerous situations (Baldwin, undated). PTSD is diagnosed if several of the aforementioned symptoms continue over weeks and months.

Moreover, some of the victims of violence may develop serious depressions, particularly in cases of partner- or spouse-inflicted domestic abuse enduring over a longer period of time (Schornstein 1997).

A study by Thyen et al. (2000) shows that 85% of 263 neglected and abused children and youths surveyed displayed signs of stress and / or emotional trauma, and underlines how serious such traumas can be. More than one-third of these children and adolescents showed noticeable behavioural disorders, 55% suffered from disorders in social and emotional development, and a further one-third displayed developmental delays or educational handicaps, as well as disorders in speech development. Affected children mostly attract attention through negative behaviour: They are frequently involved in violent incidents in the kindergarten, at school or on the street; they play truant until expulsion from school, and have poor powers of concentration or are hyper-active (Hall and Lynch 1998).

These findings are supported by Beintker et al. (1999), showing that isolation, alcoholism, criminal behaviour, low self-esteem or self-destructive behaviour in adulthood can have its roots in psychological and physical violence during childhood.

In the World Wide Web, the Centre for the Study of Violence and Reconciliation in South Africa has set up internet pages for victims of violence, asking them to accept aid should they suffer from the following disorders: confusion, nausea, feeling cold, numbness or shivering. The internet page moreover clearly informs of the potential dangers of self-destruction and suicide attempts (Hamber and Hlungwani 1999).

A grievous problem with emotional trauma is that they cannot be recognized as easily as open wounds, fractures or scars. The pain is hidden and is often suppressed and negated for years. Yet it is real. Emotional trauma have as weakening effects as any other injury. However, due to the fact that PTSD seldom entails visible symptoms, victims carry their weight "in secret". PTSD and emotional trauma often lead to physiological reactions like chronic headaches, backache, asthma, gastric or intestinal
complaints, insomnia or health-destructive behaviour (WHO 1997). Most victims seek medical assistance for these symptoms, not, however, assistance in treating the fundamental problem. This is the reason why medical and psychological interventions can only be of little effect in the long run.

Not only medically, but also economically it is meaningful to psychologically and psychiatrically treat survivors of violence and abuse, as the effects of PTSD can continue lifelong and lead to recurring illness, and, at the worst, to complete impediment or unemployment. Furthermore, treating today’s victims may decisively help prevent them from becoming tomorrow’s offenders, especially in the case of child abuse (Stucky 1998).

5.3 Anomie

The above descriptions of psychological and emotional health outcomes of violence are those individuals suffer from. However, violence can also destroy or at least severely damage solidarity and social cohesion of groups such as families, teams, neighbourhoods and other social organizations. French sociologist Emile Durkheim coined the term "anomie" for this phenomenon, i.e. a state in which social disruption of a community results in health risks for the individual (Fullilove et al. 1998). In the presence of violence, people no longer feel safe to leave their homes, are more afraid in the streets, and are increasingly concerned about their neighbours' intentions and behaviours. Social withdrawal, i.e. increasing isolation, is the most usual response to violence in communities. As people fear violent attacks, they try to protect themselves and their children by avoiding contact with others. The cumulative effects of urban violence consequently result in increased anomie, characterized by prejudices and absence of solidarity, mutuality, and joined activities (Fullilove 1996). Anomie also includes feelings of alienation, powerlessness, hopelessness, and an aversion to deal with uncontrollable events (Sanders-Phillips 1996; Cohen et al. 1982).

5.4 Health-destructive behaviour

Health-destructive behaviour can be a further result of violence. As mentioned in section 4.10 ("Alcohol"), not only many offenders are often under the influence of alcohol, but also victims frequently reveal high blood alcohol concentration levels (Grasso et al. 1999).

Many victims, especially women living in violent environments, socially isolate themselves and try to better endure their situation by consuming drugs or alcohol. The fact that many inhabitants of Kingston, Jamaica, consider the use of marijuana a positive means to escape their poverty-
related pessimism (see section 4.11, "Drugs") and not as a drug, underlines the importance of such substances to victims. In this way, the consumption of alcohol is not only a determinant conducive to the emergence of violence, but also a health-outcome in the form of self-destructive behaviour.

6 Financial consequences of violence

Apart from the immense effects on physical and psychological health, violence also creates enormous financial damages to affected families, the communities, and state (Marais 1998). South African studies have shown that the economic costs amount to several hundred million Rands, due to the loss of working hours and reduced productivity. Phillips 1998 (cited in Peden and Butchart 1999) conducted an analysis of the costs of all homicides committed in the Western Cape Metropolitan Area in 1997. Her study contains reports and documentations of morgues, data on the costs of forensic examinations per case, the annual average income by job categories, present and future economic trends, and statistical data by insurance companies on the investment in risk insurance policies. Data on 2,065 homicides in Salt River and Tygerberg reveal that their cost to the economy amounted to between 27 million and 110 million Rand (1 Rand = approximately 0.15 US$). In 1997, approximately 58 million Rand were spent on the imprisonment of offenders in the Western Cape. Adding these expenditures to the direct and indirect cost of homicides in Cape Town, the total costs amounted to between 90 million and 170 million Rand in 1997. "If only one tenth of this cost was invested in prevention efforts that have been demonstrated to be effective, the long-term benefits to society would be considerable – economically, socially and individually" (Phillips 1998 cited in Peden and Butchart 1999).

In its report "The Measurement of Violence", a one-year population survey on all victims injured by firearms and treated in hospital in California (USA), WHO (1998d) sums up the cost of violence as follows:

- US$ 164 million in total hospital costs for over 9,000 patients;
- US$ 17,888 average cost per patient

From 1987 to 1990, the average annual cost for victims of violent attacks in the USA was estimated at US$ 34 billion, with an additional US$ 145 billion for the loss of quality of life (WHO 1998d).

Such estimates clearly show the enormous financial burden caused by violence. Not included are the expenses necessary for medical treatment of the effects of suppressed emotional traumatata or those on children and youth who, as witnesses of violence, often develop abnormal social behaviour
and may become violent offenders themselves (cf. Dulmus and Wodarski 2000).

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Adolescent Violence in Cities –
Determinants, Surveillance and Prevention

Susanne Jordan

1 Violence and public health

Violence is a public health issue with global relevance and far-reaching health consequences, affecting the well-being of those involved and making demands on health services. Young urban people are offenders and victims in different forms of interpersonal violence. In general, violence has a major impact on mortality and morbidity in adolescence.

In this paper, the problem of adolescent violence in cities is described from a public health perspective. Special emphasis is laid on the determinants of violent behaviour; their description and analysis is done within a comprehensive framework which is, according to its levels of analysis, called "MLIVEA" (macro level, local setting, individual level, violent act, health effect, and action).

1.1 Health and violence: an issue

Health is involved in many respects of violent acts. As a result of their injuries or traumas, victims of violence come into contact with the health system. Damages caused by violent acts result in a reduction in health: Victims can be hurt physically, mentally, or socially. Accordingly, the health system – in terms of its services, the role of health professionals, and the health expenditures – is concerned with the consequences of violence. This applies also to those who commit acts of violence: Not only are persons attempting suicide admitted into the health system, also in cases of interpersonal offences the psychological and social health of the perpetrator is of great relevance.

To understand more about violence as a health problem, a broadly applicable definition is needed. Violence exists in many forms (cf. chapter 3.1), and a definition should encompass a general understanding and scientific measurement of the problem, such as the working definition the World Health Organisation (WHO 1998a: 8): "Violence is the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high
likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation."

The use of physical force or power does not only include physical action but also neglect and emotional abuse, occurring e.g. in parent-child relationships. "Intention", sometimes difficult to uncover, should be seen as a continuum. The expression of "power" can immanently reflect the gender dimension of violence, which can be found in many interpersonal violent acts, when the perpetrator is male and the victim is female (WHO 1998a; Heise 1993).

1.2 Mortality and morbidity due to violence

Globally, violence is a health problem with enormous consequences. In 1993, world-wide, over one million people died as a result of homicide or suicide. To this, one must add the victims of wars and civil unrest, which killed millions of people in the last few years – including children and women (WHO 1998c). According to the World Bank (1997), society also bears high social costs of violence, e.g. in the form of an overall climate of fear replacing solidarity and co-operation in community life (cf. Ommen 1998; Harpham and Reichenheim 1994).

To apprehend the health consequences of violence, a general overview of its burden at the global level might be helpful. In 1990, violence contributed 4.1% to the global burden of disease and is likely to increase up to 7.1% until 2020. These "burden of disease"-estimations are based on calculations of Disability-Adjusted Life Years (DALYs), which include data on mortality as well as disability. Each DALY indicates the loss of a year of healthy life – that is, time lived with a disability or time lost through premature death. The higher the DALYs, the greater the burden. The calculations for violence include self-directed violence (suicide), different forms of interpersonal violence, and war-related violence.

For the year 2020, Murray and Lopez (1996) estimate that war will rank eighth, other interpersonal violence twelfth, and self-inflicted injuries fourteenth as the leading causes of deaths (table 1; see also Cornelius-Taylor in this volume for more detailed age-specific data). Concluding, it can be assumed that violence in cities is a great hazard to the people's health, and there is urgent need to take action.
Table 1: Disease burdens of 15 leading causes of death, world, 1990 and 2020

<table>
<thead>
<tr>
<th>Rank</th>
<th>1990</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lower respiratory infections</td>
<td>Ischaemic heart disease</td>
</tr>
<tr>
<td>2</td>
<td>Diarrhoeal diseases</td>
<td>Unipolar major depression</td>
</tr>
<tr>
<td>3</td>
<td>Conditions arising during the perinatal period</td>
<td>Road traffic accidents</td>
</tr>
<tr>
<td>4</td>
<td>Unipolar major depression</td>
<td>Cerebrovascular disease</td>
</tr>
<tr>
<td>5</td>
<td>Ischaemic heart disease</td>
<td>Chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>6</td>
<td>Cerebrovascular disease</td>
<td>Lower respiratory infections</td>
</tr>
<tr>
<td>7</td>
<td>Tuberculosis</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>8</td>
<td>Measles</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Road traffic accidents</td>
<td>War</td>
</tr>
<tr>
<td>10</td>
<td>Congenital anomalies</td>
<td>Diarrhoeal diseases</td>
</tr>
<tr>
<td>11</td>
<td>Malaria</td>
<td>HIV</td>
</tr>
<tr>
<td>12</td>
<td>Chronic obstructive pulmonary disease</td>
<td>Conditions arising during the perinatal period</td>
</tr>
<tr>
<td>13</td>
<td>Falls</td>
<td>Violence</td>
</tr>
<tr>
<td>14</td>
<td>Iron-deficiency anaemia</td>
<td>Self-inflicted injuries</td>
</tr>
<tr>
<td>15</td>
<td>Protein-energy malnutrition</td>
<td>Trachea, bronchus, lung cancer</td>
</tr>
<tr>
<td>16</td>
<td>Self-inflicted injuries</td>
<td>War</td>
</tr>
<tr>
<td>17</td>
<td>Violence</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on DALYs

1.3 Public health approach to violence

If we regard public health as the "science and art of preventing disease, prolonging life and promoting health through organised efforts of society" (Last 1995: 34-35), violence in its different forms can be effectively addressed by public health and health sciences, as they focus on a multidisciplinary approach with an explicit interest towards identifying effective strategies of preventing adolescent and other forms of violence.
Mercy et al. (1993) and WHO (1998a) propose four steps in the public health approach to violence, called the "public health prevention action cycle" (figure 1). This approach begins with the definition of the problem, i.e. data collection on health consequences, mortality, morbidity, demographic information of the involved persons, characteristics of the situation, costs incurred by the incident and the victim-perpetrator-relationship. In the second step, causes and risk factors e.g. through epidemiological studies are identified. After that, it is possible to carry out and test interventions based on the information obtained. Finally, after the evaluation of programmes, interventions which are likely or proven to be effective can be implemented. WHO (1998a) emphasises that in reality the procedure is less linear and some steps occur simultaneously.

**Figure 1: Public health approach**

![Diagram showing the public health prevention action cycle]  


The strategy of the public health prevention action cycle fits well the public health approach of primary, secondary and tertiary prevention, which is also applicable to violence:

- Primary prevention to create conditions not leading to violence;
• secondary prevention ensuring appropriate care causing no further harm (early detection);
• tertiary prevention to provide long term care for optimal reintegration.

Beyond the traditional "old" public health concept, public health offers methods and approaches emphasizing the empowerment of people and communities in order to help them see that violence is not inevitable (cf. WHO 1998a). In particular, health promotion (WHO 1986) can contribute to this, also the "new" public health approach and health sciences (Hurrelmann and Laaser 1998).

1.4 Violence: a problem of cities and of young people

It is noticeable that the problem of violence mainly concentrates in urban areas. In São Paulo e.g., 7,358 were murdered in 1995, in Los Angeles 2,000 and in Bogota 5,000. In many urban areas, violent crime has increased in recent years (Krug et al. 1998; Millner 1998; Zvekic and Alvazzi del Frate 1995).

Violent acts account for about 25% to 30% of all urban crimes. Vanderschueren (1998) estimates that urban violence has increased between 3% and 5% each year over the past two decades; victimization rates however may vary considerably by region and city (table 2).

Table 2: Victimization rates (violent crimes) in urban areas, five-year-period

<table>
<thead>
<tr>
<th>Region</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Europe</td>
<td>15</td>
</tr>
<tr>
<td>North America</td>
<td>20</td>
</tr>
<tr>
<td>South America</td>
<td>31</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>11</td>
</tr>
<tr>
<td>Asia</td>
<td>11</td>
</tr>
<tr>
<td>Africa</td>
<td>33</td>
</tr>
</tbody>
</table>

Based on a sample of 74,000 persons in 39 countries
Source: Vanderschueren (1998)

The rise in urban violence is an important fact considering that in the near future increasingly more people all over the world will live in urban areas. Almost two thirds of all people will be resident in cities by the year 2030, particularly in mega-cities (UN 1997). In general, cities in the southern hemisphere have populations younger than the global average, with a
high proportion of male adolescents, who are the main perpetrators of violent acts (Müller 1998). It is striking that young people are often involved as members of street gangs or as street children. In cities moreover, the age of offenders is decreasing and murder is more common, as Vandeschueren (1998) points out. In general, the age group which is most affected by violence are young people.

2 Determinants of adolescent violence in cities

Before depicting determinants of juvenile delinquency and violent behaviour, the following sections address the theoretical background and the development of the new framework used to explain potentially influencing factors of adolescent violence in cities.

2.1 The MLIVEA framework

Every country, every city, and every neighbourhood is different, posing its own specific conditions, which limit comparisons of the different factors causing adolescent violence. Nevertheless, one can distinguish generally proven hypotheses from less successful ones by making reasonable abstractions and by using frameworks and models in order to reduce and simplify the complex reality. This is often a good starting point for deepening one's understanding of the phenomenon and finding comprehensive solutions. This approach is useful for adolescent violence in cities that is caused by several factors, not all of which we know or whose interactions we understand (Heitmeyer et al. 1998; Friedrichs 1983).

For a deeper understanding and to make the problem of adolescent violence in cities more vivid, a new framework has been developed (cf. Jordan 2000). It is called the "MLIVEA framework" due to the structure of its components, which are macro level, local setting, individual level, violent act, health effect, and action. The advantage of the framework is the presentation of the whole process and the interrelationships of factors which lead to violence. The development of the MLIVEA model was inspired by a framework from the environment and health research and is described by Corvalán et al. (1996; see also WHO 1997b).

The issue that plays an important part in understanding the development of violence is that those determinants of the macro level, the local setting and the individual level are mutually reinforced (as shown in figure 2). Violent acts can influence even those determinants that caused violence in the first place.
Instead of using arrows between the different levels, in the new figure terms are adopted which express the way the levels affect each other. This is done to reduce complexity rather than to mirror reality completely. The arrows used at the action level show where the action is located, but they also affect other levels (see figure 3).

**Figure 2: Presentation of levels**

![Diagram of levels](image)

Source: own compilation.

Regarding urban adolescent violence, health determinants are operating on different levels. Interventions are necessary – however, in some areas we do not know enough about potential side effects or unintended consequences. A multilevel framework is the first step in making interventions more effective and predictable. These frameworks offer an opportunity for systematic surveillance and information analysis in the interest of decision-making.
Figure 3: The MLIVEA framework for the explanation of adolescent violence in cities

Macro level
- Social-cultural background
- Socio-economic conditions
- Urbanization
- Political and legal conditions

Local setting
- Home
- School
- Neighbourhood, streets, community
- Workplace

Individual level
- Risk-taking behaviour
- Violence experience and witnessing
- Alcohol and drug use
- Genetics and neurological conditions

Violent act
- Self-directed violence
- Interpersonal violence
- Group violence

Health effect
- Mortality, DALYs
- Morbidity
- Well-being
- Costs for society

Action
- Economic policy for equity;
- International agreements;
- Criminal policies,
- Health sector reorientation
- Community initiatives,
- School programmes;
- Healthy City;
- Social support
- Strengthening resiliency and social skills
- Security improvement;
- Training of police
- and counsellors
- Emergency and rehabilitation care surveillance

Source: Jordan (2000).
The MLIVEA framework presents an overview of the relevant factors causing adolescent violence. Determinants of the macro level are the underlying causes that promote social, cultural and scientific-technical change. They are factors that drive the social environmental processes not only at the local level but at the level of society as a whole. Factors of the macro level result in the generation of conditions, which change the social environment at the local level. The different settings, such as home, school, neighbourhood and workplace, affect adolescent violence in cities and represent an "entry point" to the process of social change. They offer an effective point of prevention and control. The vulnerability of youth relates to risk factors at the individual level which refers to those events or characteristics that increase the likelihood of developing any form of violent behaviour. Often individual risk factors can be regarded as a response to pressure and changes in the local setting. A violent act refers to actual events in society that lead to violence-related health effects, which can be described and monitored e.g. in terms of mortality and morbidity. The action level shows what specific measures can be taken to reduce violence at the macro level, the local setting, and the individual level. A detailed discussion of the different levels is given in the following chapters.

MLIVEA illustrates the various aspects of the problem including all influencing factors at the different levels. This might be helpful for decision makers, for example on the city level in setting priorities for political action.

2.2 Macro level factors influencing urban violence

Determinants of the macro level represent dimensions of the social, economic, cultural and political environment. Macro level factors are the underlying causes of social change driving social processes not only at the city level but in the whole of society. In this manner, the macro level creates general societal conditions which affect the development of young people on the one hand, and the formation of adolescent violence in cities on the other. In the following sections, urbanization, socio-economic conditions, social-cultural background, and finally political and legal conditions as some dimensions of the macro level are outlined.

2.2.1 Urbanization of the world and its consequences

In the near future, less people will live in rural regions and more and more people will be residents in urban areas all over the world (cf. table 3). According to estimates of the United Nations (UN 1999), population
growth and demographic development will result in more than two thirds of the eight billion people of the world living in urban agglomerations and more than 33 mega-cities with more than ten million inhabitants by the year 2030. The urban population of the developing countries increased five-fold with growth rates of 3%, as pointed out by the 44th World Health Assembly in its resolution WHA44.27 about the urban health crisis (WHO 1991).

Table 3: Urban and rural population and percentage urban, 1996 and 2030

<table>
<thead>
<tr>
<th>Region</th>
<th>Population (thousands)</th>
<th>Percent Urban</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Urban</td>
<td>Rural</td>
<td>1996</td>
<td>2030</td>
<td>1996</td>
</tr>
<tr>
<td>World total</td>
<td></td>
<td>2,635,645</td>
<td>5,117,038</td>
<td>3,132,129</td>
<td>3,254,564</td>
<td>45.7</td>
</tr>
<tr>
<td>More developed regions¹</td>
<td>882,890</td>
<td>1,014,759</td>
<td>292,150</td>
<td>197,388</td>
<td>75.1</td>
<td>83.7</td>
</tr>
<tr>
<td>Less developed regions²</td>
<td>1,752,755</td>
<td>4,102,279</td>
<td>2,839,979</td>
<td>3,057,176</td>
<td>38.2</td>
<td>57.3</td>
</tr>
<tr>
<td>Least developed countries³</td>
<td>138,316</td>
<td>557,663</td>
<td>456,195</td>
<td>709,539</td>
<td>23.3</td>
<td>44.0</td>
</tr>
</tbody>
</table>

¹ More developed regions comprise all regions of Europe and Northern America, Australia/New Zealand and Japan.
² Less developed regions comprise all regions of Africa, Asia (excluding Japan), Latin America and the Caribbean, and the regions of Melanesia, Micronesia and Polynesia.
³ As of 1995, the least developed countries as defined by the United Nations General Assembly, comprise 48 countries, of which 33 are in Africa, nine in Asia, one in Latin America and five in Oceania.
Source: UN (1997).

The rapid urban population growth in developing countries is firstly caused by the migration into cities. Secondly, it results from an increasing surplus of births over deaths in the urban population. The population of developing countries will further show high proportions of under-20-years-olds until the beginning of the 21st century.

In the developed world, different observations can be made. The phenomenon of an ageing society also has consequences for cities (WHO 1992). However, even if young people do not represent such a large population group in industrialized countries, they are always regarded as the so-
ciety's future. Society always reacts with special awareness regarding what happens to and with young people.

The urban future of the world with its population dynamics is interrelated with the process of urbanization. Urbanization is a process characterized by plurality, being different in every urban area as well as in every country and region. Nevertheless, there are some common aspects: an increasing number of inhabitants in cities, a concentration and expansion of working places, and the extension of industrialized areas. In contrast to rural areas, the number of inhabitants is so great that establishing and maintaining personal relationships is more difficult and social distance and anonymity are predominant.

In general, social aspects of urban life are ambivalent. On the one hand, it seems that cities pose stress for the individual adolescent identity process, arousing feelings of anonymity, narrow self-interest, and fear. On the other hand, many positive aspects of urban life reflect cultural and intellectual stimulation, personal choice in pursuing various social roles and moral options all of which can promote a healthy life.

The epidemiological picture of urban areas differs between cities of the "First" and the "Third" World and shows intra-urban differences, as well. The "epidemiological transition" characterizes the transition in patterns of health and population from infectious diseases to chronic diseases (Harpham and Reichenheim 1994). In the cities of the Third World—especially in poor areas—people suffer more and more from the worst diseases found in both the First and the Third World.

### 2.2.2 Socio-economic conditions

Poverty does not affect the psycho-social health status only; being poor also constitutes a de facto risk for violence in most societies. This applies to both absolute deprivation or poverty, and socio-economic inequality (relative deprivation). Studies by Millner (1998), Wilkinson (1996) and in particular those on adolescents carried out by the World Bank (1997) and James (1995) show that poverty and income inequality are important determinants of violence.

WHO (1998a) states that poor people do not intrinsically tend to act more violently than richer people do. But it is the feelings of inequality poor people bear in combination with frustration, depression and insecurity that cause violent behaviour. Braithwaite and Braithwaite (1980) and Wilkinson (1996) reveal that societies characterized by extreme income inequality show higher homicide rates. Concerning adolescents, James (1995) shows that violent adolescent boys were often violent as small children and
that most of their parents felt depressed due to their relative poverty. All these findings indicate that the effects of economic factors are transmitted largely through psycho-social channels. Income differences have widespread psycho-social effects, e.g. in the form of individual stress. It is not only that material factors affect one's well-being and health – psycho-social factors might be of relevance as well.

In a society characterized by status-related social exclusion, aggressive subgroups, being opposed to the rest of society, are more likely to emerge (Wilkinson 1996). The stigmatization of the most disadvantaged is closely related to the extent of income inequality. Income distribution is a basis for processes of social stratification and social distinction in modern societies, which can destroy social capital (Kawachi et al. 1999; Putnam 1993). In this way, high inequality is an indicator of low social cohesion; social cohesion however is a precondition of a stable and "working" society and economy. When the "social fabric is in better condition [...] the society appears more caring" (Wilkinson 1996: 191) which means that social capital (or social cohesion) is high.

These arguments are based on the assumption that social factors matter once countries have passed the epidemiological transition into the pattern of the developed countries (Wilkinson's research is about industrialized countries). Other studies show similar results and conclude the same for developing countries (see World Bank 1997). Particularly relevant to Third World urban areas – places of rapid economic development with high levels of unemployment and lack of education – are the negative effects which inequality has on young people's behaviour (cf. Williams 1998; Millner 1998; James 1995).

Following this argumentation, it is not surprising to find parallels between poor health, emotional problems in childhood, poor educational performance, and violent crime – especially in poor urban areas. Nowhere is inequality more obvious than in cities where the rich and poor live close to each other but are separated for most of their activities. Spatial and social isolation of the poor is combined with the anonymity of cities, making it more difficult to develop social capital, and creating more vulnerability of young people.

2.2.3 Social-cultural factors

The socio-cultural context in which young people grow up has a profound influence on individual behaviour, i.e. adolescents from distinct socio-cultural backgrounds are influenced by different socio-cultural factors relevant to the occurrence of violence. In this way, societies can have
specific cultural values and social norms – for instance, a violent or a sexist societal climate – which more or less advance violent behaviour (cf. Barnett et al. 1997; Stenert 1995; Flisher et al. 1993).

Gender disparities convey stereotyped images of power and dominance of the male, e.g. patriarchy as the "right" to dominate and control women and children (Barnett et al. 1997). Gender inequity is already of importance to adolescents (Flisher et al. 1993), who are in a decisive period of life, as they early learn gender scripts and try to find their own social roles.

Public opinion and researchers, e.g. Wolfe et al. (1997b) and Schwind et al. (1990), see big hazards proceeding from media in modern societies, in particular from violence and brutality shown in TV-broadcasts, video tapes and movies and from the way gender roles are presented. Additionally, the way the media deal with the subject of adolescent violence increases a negative learning process. On the other hand, the media condemn adolescent violence.

Furthermore, it is essential which acts or behaviour society labels "violence". The socio-cultural definition of violence is of special importance to adolescents, because their behaviour essentially orientates by the socio-cultural norms and values in their social environment internalized by adults and peers and passed on through education and legislation. The socio-cultural context is influencing the political-legal conditions as well.

Globally, a culture characterized by the "modern" life style is spreading. It is predominantly and rapidly transferred and internalized by the young people in cities. Even though change of society is something normal (Elias 1969), social changes in the form of modernization and changing life style pose requirements to people, and especially to adolescents (Hurrelmann 1991). This means that modernization is not inherently entailing violence, but it can contribute to it, because it makes adolescents more vulnerable than under stable conditions. Furthermore, social change can intensify the effects of other factors such as poverty and inequality in a society or in a city (cf. Friedrichs 1983).

2.2.4 Political and legal conditions

Throughout history and current politics, the societal judgement whether an act is a violent act rather than a tolerable, normal or necessary act, is essential to policy, legislation and criminal law. What a society defines as violence can be quite different in distinct societies (Merten 1999; Harvey 1997) and the same society judges differently under changing conditions (e.g. peace and war). In modern societies, violence is used legally only by the state (Steinert 1995; Elias 1969).
The legal system has consequences for the potential prerequisites of adolescent violence such as the access to firearms and weapons, the use of alcohol and other drugs, as well as the legal classification of adolescent violence. The availability of firearms and weapons plays an important role in the occurrence of adolescent violence in many countries and cities (Krug et al. 1998). The use of alcohol and other drugs is a risk factor for adolescent violence. Law limits the access to alcohol and other drugs for the young people in order to protect them. In many countries, adolescents cannot purchase alcohol and other drugs legally; some states even prohibit any person from using alcohol and drugs.

One of the most important state-influenced preconditions or risk-factors of adolescent violence is the legitimacy of parent-to-child violence. Corporal punishment of children and adolescents is beginning to be prohibited by law in more and more countries. This has emerged from public discussions about what society regards as violence (Lundman 1993).

Furthermore, the state determines how violent acts are legally handled and what consequences perpetrators have to bear. Due to their particular legal status and with respect to their age, especially young assailants are treated differently in many countries.

2.3 Local settings affecting adolescent violence

This chapter describes the importance of different settings, which influence the development of adolescent violence in cities. WHO (1998b: 19) defines a setting as: "[...] the place or social context in which people engage in daily activities in which environmental, organizational and personal factors interact to affect health and wellbeing."

Settings such as the home, school, neighbourhood and workplace affect the occurrence of adolescent violence. Such settings represent a "mirror" of the process of social change because they are all affected by the macro level and connecting links to the individual level.

Hurrelmann (1994) explains the importance of these settings and the role of the institutions with respect to the young persons' socialization. The settings in which adolescents are involved transmit social norms and communicate the sanctions that determine the incorporation of adolescents into society.

In the following sections, different settings are discussed in which young people are involved and which play an important role for developing either non-violent or violent behaviour. Home, school respectively workplace and community are presented in their general functioning for young people with a special focus on urban adolescent violence.
2.3.1 The family and the role of parents

The family is the fundamental unit of all societies. Obviously, the family and parents—or other primary caregivers—play an important role in the development of young people. Some intra-family factors have been identified which affect the probability of adolescent violence: ways of parenting, parent-child attachment, conflict, and violence in the family.

Parental behaviour and family structures are strongly influenced by the macro level factors discussed in chapter 2.2, which are relevant both to urban and non-urban areas. However, parental stress factors appear stronger in cities than in rural areas. In this way, social change can threaten stability of many families and makes many parents feel ill-equipped to prepare their children for experiences they themselves have never had (cf. WHO 1993b).

The interaction process taking place in families is a further key determinant. Deficits in parenting increase the probability of deviant behaviour during childhood and adolescence. For non-violent adolescent behaviour, a sense of self-control needs to be developed. Together with conform behaviour, self-control is associated with non-violent behaviour of adolescents. In the scientific literature, some parenting styles are identified that hinder forming a sense of control and promote adolescent delinquent behaviour. For instance, families in which disapproval, rejection, low attachment and harsh parenting styles predominate, are unable to adequately socialize their children (cf. Short 1997; Wilkinson 1996). Apart from the educational style, the way the family keeps together additionally affects adolescent violence. Divorce or separation can influence control of impulse, temperament and excessive energy found in children (Wolfe et al. 1997b).

Intra-family violence effects adolescent violence. Until recently, intra-family violence has been an area that was hidden due to social, cultural and legal principles. Though, the home is the place where violence often is experienced for the first time in life and where violent or non-violent behaviour is learned. The family determines attitudes towards violence, transfers values about the legitimacy of violence as way of conflict solution or reaching individual goals (Ohder 1992). Adolescents can learn violent behaviour from their parents through imitating role models, their behaviour is suppressed or reinforced through punishment and rewards (Barnett et al. 1997). However, this does not mean that family violence inevitably leads to adolescent violence. Family life is to be considered only as one of a series of potential factors (Patrignani and Villé 1995).
2.3.2 Formal education and peer experiences

School represents a major source of guidance and education of children and adolescents. Schools are locations where young people obtain knowledge and many personal and social experiences. Schools and other educational institutions can increase the probability of violent behaviour among pupils inside and outside their institution (cf. Ohder 1992; Meier 1997).

In many cities, pupils experience different forms of violence at school: violence against things (vandalism), damaged buildings and furniture predominate. Frequency and forms of interpersonal violence may vary markedly depending on the pupils' age and socio-economic status, form of the school, city and country. For the most part, the following forms of interpersonal violence occur: psychological violence (e.g. bullying), provocation, competition, terror or blackmail, moreover fights and sexual harassment. Violence from teachers is in most cases psychological, but it can also be physical (e.g. corporal punishment). By comparison, violence against teachers is a rare phenomenon (Merten 1999; Meier et al. 1995).

Although violence is not one of most urgent problems at school, it seems to be interrelated with violence at other settings. Of special concern during adolescence are youth groups or cliques as informal (rarely formal) opportunities to meet peers and spend time together. Young people who tend to use violent behaviour have a high affinity to peers and youth groups which likewise behave violently (Funk and Passenberger 1997). These groups tend to consider violent behaviour more or less as part of their group culture.

2.3.3 Neighbourhood and community impacts

In this paper, the terms "community" and "neighbourhood" refer to the physical and social environment shared by a group of people in their everyday life.

Opposite to marginalized and socially disadvantaged neighbourhoods, social environments with low violence rates tend to be socially cohesive communities with a strong community life. Social cohesion is a typical feature of communities that show low social disorganisation, high potentials of social capital (discussed in section 2.2.2), and high social control (Kawachi et al. 1999). The social cohesiveness of communities is determined by the extent of social organization, i.e. communities' and families' competence to socialize and to care for children, the ability to supervise and control adolescents and the existence of informal support and neighbourhood networks.
Social control seems to have a particular influence: Violent crime rates are high in those urban areas where social control is low. Weakened social control contributes to social isolation and lowers the binding character of values and role models that are of particular importance to adolescents to adapt to non-violent behaviour models. The conditions in inner city neighbourhoods and in many disadvantaged areas of the world’s cities (cf. section 2.2.1) make it difficult for young people to find positive role models with explicit norms against violent behaviour. Consequently, it becomes more difficult for the cities to uphold the essential institutions of socialization and social control (Wilson 1987). Instead, a loss of social networks and less social integration is observable, promoting violent behaviour which mutually reinforces processes of urban decay leading to further disruption of social integration (Short 1997).

2.4 Vulnerability of adolescents at the individual level

The unit of analysis at the individual level is the person. Former research stressed that young violent people are mainly lacking a sense of justice and education (Kaiser 1959). In recent years, however, it has become clear that delinquent behaviour is associated with quite diverse and complex interrelated psychological, social and biological determinants at the individual level and is not a mental disease. In this context, personality means the way people learn from experience and adapt to their feelings, thoughts, and actions. It is the "[...] dynamic organization within an individual of the psychobiological systems that modulate adaptation to a changing environment. This includes systems regulating cognition, emotion and mood, personal impulse control, and social relations. Personality traits are enduring patterns of receiving, relating to, and thinking about oneself, other people, and the world as a whole" (Cloninger et al. 1993: 976).

The vulnerability of youth relates to those individual risk factors that increase the likelihood of developing any form of violent behaviour compared to those who do not have such characteristics (WHO 1997c). In respect to the MLIVEA framework, individual risk factors can be regarded as a response to changes in the local setting. The factors involved are complex, far-reaching, and can be classified into the above mentioned psychological, physiological and social dimensions of the individual that are relevant to violent behaviour.

To understand juvenile violence and individual risk factors during adolescence, it is important to see the peculiarities of this age group and why they are especially vulnerable in regard to violence. Adolescence is the time of life approximately between the age of ten and twenty-four. How-
ever, the beginning and the end of this phase are determined by biological and social time. This differs from society to society (Siegrist 1995; Hurrelmann 1994; WHO 1993b). Even if socialization is a life long process, the period of adolescence is a key time for developing a sound personality, which in this context also means non-violent personality. Socialization means the process of developing personality by continuously tackling the social and material environment mediated through society (Hurrelmann 1991; 1994). Adolescence is a very vulnerable period of life which strongly interacts with self-concept, self-consciousness, and self-control (Siegrist 1995) and makes the young people be prone to different forms of risk-taking, deviant and delinquent behaviour.

2.4.1 Risk-taking behaviour and the use of alcohol

Adolescence is the phase of life to which "personal experiments" belong to. Young people are more likely to explore and to rebel against their social environment than other age-groups, thus the potential of risk-taking behaviour is greater (WHO 1993a). The concept of risk-taking behaviour or problem behaviour covers similar fields of non-conform respectively non-conventional behaviour, which is often classified as hazardous, unhealthy behaviour (e.g. smoking, risky driving, unsafe sexual intercourse, illicit drug use, problem alcohol drinking and last but not least violence, cf. Jessor et al. 1990).

Risk-taking behaviour during adolescence serves as a means to achieve social status and is a part of the development process representing subjective, rational choices of goal-directed behaviour. It is a part of the process of individuation and integration which adolescents experience during the time from childhood to adulthood (Hurrelmann 1994).

Research shows that many patterns of risk-taking behaviour are interrelated. However, this does not mean that they presuppose each other (Flisher et al. 1996; Kolbe et al. 1993); studies provided evidence that many mediator or intervening variables have to be taken into account that heavily limit validity of common assumptions on cause-effect-relations (Smith 1995; Hurrelmann and Lösel 1990). The form of risk-taking behaviour a young person "chooses" depends on influences of the local setting and the macro level. The use of alcohol e.g. is depicted as risk-taking behaviour in more detail, as it is widely regarded as being involved in or preceding violent acts (cf. Short 1997; Flisher et al. 1996; Saner and Ellickson 1996).

According to different studies, between 50% and 80% of violent offenders drank alcohol (Short 1997). Among adolescents, 69% of those committing self-directed violence consumed alcoholic beverages. Associa-
tions between the use of alcohol and violent behaviour however are explained quite differently (Zhang et al. 1997). According to Rautenberg (1998), there is even no evidence of a significant relationship between the willingness to use violence, substance use (alcohol, drugs) and delinquent behaviour. He argues that it appears very difficult to make clear statements on causes and effects. Violence and addiction thus do not seem to be causally interrelated; the author assumes that violence rather results from a general "deviant life style". His results support the importance of associations between factors of the individual level, the local setting, and the macro level.

2.4.2 Approaches to social control and self-control

According to many scientific and philosophical conceptions, all humans possess the capability to violence (Nell 1995). Accordingly, something hinders humans to become aggressive and violent. This is the topic of different control theories of which some focus on characteristics of external formal (e.g. police and legal systems) and informal social control (e.g. family and community). Moreover, others consider forms of internal control, e.g. one's conscience and social bonds (Eisner 1997; Short 1997).

Following this approach, lacking predisposition to self-control which should have been established at childhood, can easily lead to delinquent and violent behaviour during adolescence. In the context of youth violence, particularly Hirschi's theory of control (1969) has been seriously taken into account. This theory focuses on central elements promoting non-deviant behaviour: attachment to parents or to other important persons, commitment to goals, norms and values, and involvement in social activities. It is easy to anticipate that due to certain detrimental living conditions prevailing in urban areas, children and adolescents are not able to develop social bonding and to internalize social control at the individual level.

The mechanism of establishing self-control is a good example of the interrelationship of the different levels of the MLIVEA framework. Determinants of the macro level e.g. have an impact on external control e.g. in the form of supervision of young people's activities or laws on juvenile delinquency (cf. section 2.3.3). They create conditions under which parent-child-relationships are weakened at the local setting which consequently limits opportunities for bonding and monitoring (cf. section 2.3.1).
2.4.3 Violent experiences and witnessing

Forms of violence against children are manifold, ranging from harsh disciplinary practices and corporal punishment to child maltreatment and abuse. Furthermore, children experience forms of non-domestic violence including political violence and war. Millions of children and adolescents in many cities of the world also grow up as street children under battlefield-like living conditions, a life which is exposed to many forms of violence.

Young abused persons frequently exhibit poor capabilities in school and at workplace. They perceive themselves as powerless and tend to blame themselves for their victimization experiences. Long-term abuse is often accompanied by depression, self-directed violence (suicide), substance abuse, psychosomatic complaints, and inability to develop intimate relationships. Young victims or witnesses are more likely to show symptoms of psychological problems (e.g. post traumatic stress disorder, PTSD), and they more often tend to use violent behaviour when grown older (cf Barnett et al. 1997; Wolfe et al. 1997a).

Moreover, a young person who witnesses or becomes a victim of violence not only gets physically and psychologically hurt. Experiencing or witnessing violence is part of the intergenerational cycle of violence, i.e. the transmission of violent behaviour from one generation to another (Mercy et al. 1993). Once a child starts to see the world as hostile, he or she learns scripts and schemes of aggression, and believes that violence is acceptable.

2.4.4 The biological perspective

Determinants of adolescent violence at the individual level referring to biological aspects range from genetic to neurobiological "traits". However, studies suggest that biological factors may be moderated by social factors as a consequence of macro level-influences Therefore, Brennan et al. (1997: 169) see adolescent violence as "a transactional, developmental process in which biologically vulnerable individuals find themselves ensnared in social environments which do not alleviate their vulnerabilities, but rather exacerbate them. This developmental process is reflected by a lifetime characterised by aggressive, criminal, and often violent behaviour."

Genetic factors may largely give rise to biological risk factors (Raine et al. 1997). However, research done in this field very often focuses on aggression or violence of non-human species, and it is fairly questionable if findings of such studies are generalizable to humans. This also applies to cytogenetic, twin and adoption studies. Even if one accepts these limita-
tions, there is only weak evidence that genetic factors are directly responsible for adolescent violence (Volavka 1995). Neuropathology may be considered a "necessary" but not "sufficient" preceding condition for the occurrence of adolescent violence. As Short (1997: 153) sums up, "neurochemical mechanisms clearly are involved in violent behavior, but the relationships are empirically complex and poorly understood."

Biological as well as social risk and protective factors are the centre of interest of the bio-psycho-social model. Both forces of the social environment and the individual may directly promote or prevent violent acts and are interrelated (cf. Raine et al. 1997; Steinert et al. 1997). Raine et al. (1997: 14) say that "environmental forces can give rise to the expression of a latent genetic trait (e.g. poor social environment magnifying genetically predisposed low IQ), while genetic factors can alter the social environment (e.g. low IQ individual drifts into more criminogenic environments)." However, social, biological and psychological factors are rarely tested simultaneously to discover their relative contributions to the occurrence of adolescent violence.

3 Surveillance of violence and health

In this chapter, different types of violence and the most important violent acts affecting adolescents are addressed (section 3.1). After that, methods of surveillance of violence-related health effects are discussed (section 3.2). Chapter 3.3 outlines trends of mortality and morbidity due to violence in different countries.

3.1 Typology of adolescent violence

There is no world-wide standardized classification of violence yet, let alone of adolescent violence. Nevertheless, available definitions and explanations used in scientific research are helpful to provide a comprehensive description and understanding of adolescent violence in cities. WHO (1998a) categorizes violence into different types and contexts in which violent acts occur:

- The nature: active physical violence (such as assault); passive physical violence (such as negligence); verbal or psychological violence; sexual abuse;
- The perpetrator: self-inflicted violence; interpersonal violence; organized violence, often against and by groups;
- **The setting:** family violence, in the nuclear or extended family; institutional violence, occurring at school, children's homes, health institutions, workplaces etc.

Figure 4 gives an overview of types of violent acts in which young people are involved either as perpetrator or as victim.

**Figure 4: Types of violence affecting the health of adolescents**

![Diagram of types of violence affecting health of adolescents]

Source: own compilation.

The term *interpersonal violence* relates to any type of violence that involves more than one person. It is used to demarcate some acts of adolescent violence from forms of violence used by groups in public (cf. WHO 1998a; World Bank 1997). According to the victim-offender-relationship, interpersonal violence can be categorized into family violence, intimate and dating violence, and acquaintance and stranger violence.

In many cities of the world, *group violence* constitutes an essential type of adolescent violence. In general, group violence is planned to achieve or motivated by specific social, political or economic objectives of an organized social or political group (WHO 1998a). Youth groups are common phenomena in many countries and are easily associated with violent gangs, though not all of them commit crimes. Youth groups and gangs may show many forms of formal and informal organization (World Bank 1997). In many cities, dealing with gangs is an important step forward solving the problem of adolescent violence. However, not all groups which commit violent crimes are organized.

*Self-directed violence* is defined by WHO (1998a: 9) as "encompassing those intentional and harmful behaviours directed at oneself, suicide representing the most severe type. Other types include attempts to commit sui-
cide and behaviours where the intent is self-destructive, but not lethal (e.g. self-mutilation)."

Self-directed violence particularly seems to be related to rising unemployment, and in most countries, it appears that there is an inverse relationship between suicide and homicide rates. "The implication is that whether the anger goes inwards or outwards, whether you blame others or yourself, is affected by the social context" (Wilkinson 1996: 162-163).

### 3.2 Surveillance of violence-related health effects

To know more about the health effects of adolescent violence in cities, it is necessary to collect data systematically on the problem. This method is called "epidemiological surveillance", defined as "the ongoing, systematic collection, analysis, and interpretation of data (e.g., regarding agent/hazard, risk factor, exposure, health event) essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevention and control" (CDC 1999).

Surveillance is the first step in the "public health prevention cycle" as described in section 1.3. By means of epidemiological surveillance, we get more knowledge of the extent, forms and causes of adolescent violence and its health consequences in a city in order to implement prevention measures.

In the MLIVEA framework, surveillance is the link between actual violent acts committed by adolescents and the action for prevention and intervention. That is, preventive and interventive action to be taken should be developed on the basis of surveillance. The overall aim is to reduce adolescent violence in cities and, consequently, to improve health. For this purpose, data on adolescents' actual violent acts should be collected.

Health effects of violent acts cannot be easily assessed and measured; until today, they are poorly documented and underreported. Mortality statistics are the most readily available information for monitoring trends and making comparisons of homicide and suicide rates within and between countries. However, a great part of the problem is not reflected in mortality rates. Violence-related deaths e.g. may be hidden in mortality statistics, when such deaths are erroneously recorded as or attributed to accidental injuries. In surveys moreover, denial of response is a frequent problem, particularly when sensitive topics (e.g. family violence) are studied. Hence, available data often mirror only the tip of the iceberg (cf. WHO 1997c; 1998a). Allen (1998) estimates that the level of actual violent acts is four to five times higher than reported.
There are different methods to collect data on adolescent violence in cities and its health consequences (Barnett et al. 1997): *Official estimates and records* reflect rates of violent incidents reported to the police and public social service agencies such as schools and hospitals. Another source of information are city-wide (or nation-wide) *self-report surveys* by using phone, mail or face-to-face interviews. For example, the Conflict Tactics Scales (CTS) developed by Murray Strauss is the most used questionnaire to get valid data in ordinary clinical research interviews. *Victimization surveys* are mail, telephone, or face-to-face surveys of victims. They are particularly useful for studying forms of violence like date rape, when victims may hesitate to speak to the police but may be willing to give information about the violent act in an anonymous interview. *Informant reports* finally are mail, telephone or face-to-face surveys of observers (e.g. parents) and witnesses of violent behaviour. The persons directly involved (i.e. victims and offenders) are not surveyed for informant reports. To sum up, none of the methods is superior to the others and each has advantages and disadvantages.

National differences in reporting and classifying violent acts are a grave obstacle to international comparative studies. In most cities of the world, representative surveys on adolescent violence are almost impossible to conduct due to lacking financial resources and sensitiveness of the topic. In order to solve the problem, WHO has initiated the development of an International Classification of External Causes of Injuries (ICECI) (cf. WHO 1999).

### 3.3 Adolescent mortality and morbidity due to violence

The individual health consequences of violence depend on the kind, the scale and the context in which the violent act occurs. Violence can lead to health consequences such as: head and spinal cord injuries, bruises, cuts, neurological symptoms such as hearing and visual loss, headaches or numbness. Violence also causes profound psychological and psychosomatic symptoms characterized as post traumatic stress disorder (PTSD). Repetitive violence (e.g. domestic violent acts) can have strong effects on psychological well-being. Victims of intimate partner or dating violence have a greater risk of depression and self-directed violence. Further consequences are lowered self-esteem, anxiety, alcohol and drug abuse (WHO 1998c).

There are only a few international studies comparing data on adolescent mortality or morbidity. More than 15 years ago, WHO started an international longitudinal survey on health behaviour of school aged children.
(HBSC) in 22 European countries, including violent behaviour (Mansel 1995). However, the HBSC-researchers did not collect mortality and morbidity data. Their findings revealed that adolescent violence resulting in nonfatal injuries is highly prevalent among school children across all countries. Being involved in violent incidents means to be very likely to get injured (Harel et al. 1998). Furthermore, Seidman et al. (1998) show that young people in the middle adolescence reported higher levels of antisocial behaviour than those of younger ages. Younger adolescents are more likely to become victims, and males are at greater risk to be involved in different kinds of violent situations than females (cf. WHO 1998a; Flisher et al 1993).

WHO also estimates that the leading causes of mortality during adolescence are non-natural. Although violence is underreported, it ranks behind accidents as a leading cause of death in many countries. Among young people, 20%-60% of deaths or more are due to accidents, with developed countries showing the highest proportions. Deaths from self-directed and interpersonal violence, which have been increasing over the past decades in developed countries, may be added to these numbers (WHO 1993b: 1998a; 1998c).

In an international study, Jeanneret and Sand (1993), using mortality and morbidity statistics, give an overview of trends of adolescent violence in 20 countries. Due to different data sources and methods however, the data did not permit direct comparisons of the countries' mortality rates. In consequence, the authors roughly exemplified trends of violence rates in various countries. Table 4 shows the main results.

The authors concluded that adolescent violence is rising in many developing and developed countries. In almost all countries included in this study, occurrences of intentional violence reaches worrying proportions in adolescence (15-19 years) and is considered to be increasing among young adults (19-24 years). The extent of the problem is relatively well known thanks to national mortality rates. "The relative proportions of murders and suicides vary considerably from one country to another, though they remain fairly constant over time, whether the diachronic progression of mortality due to intentional violence increases, remains stable or falls in the country concerned" (Jeanneret and Sand 1993: 49).

Additionally, in most countries suicide ranks behind accidents as a leading cause of death among young people. Young men commit suicide more frequently than girls who, however, commit suicide attempts more often (WHO 1993b).
### Table 4: Trends of adolescent violence in selected countries

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↗ increasing trend; ↓ decreasing trend; → stable trend

Source: Jeanneret and Sand (1993: 34)

### 4 Prevention: actions for breaking the cycle

The following section gives an overview of specific measures that can be taken at the macro level, the local setting, and the individual level to reduce violence. Some of the proposals do not only refer to adolescents, but to all age-groups. In general, the more levels the respective measures refer to, the better the chance to reduce violence and to break the cycle of violence.
4.1 Macro level initiatives

At the macro level, international and national steps can be taken. International agreements and initiatives contribute to violence reduction through intersectoral approaches. WHO assumes a leading role in violence prevention and has recently adopted a resolution on violence prevention to urge member states to address violence as a public health issue (WHO 1997a; 1998a). There is a relation between social sustainable development and violence, which is reflected in international policies for equality and human rights. The fight against inequalities is a major step towards reducing violence which is already addressed in the World Summit for Social Development (1996).

Long-term strategies such as employment opportunities, job training and fair working conditions and wages are frequently mentioned as necessary economic initiatives to control violence and crime, especially adolescent violence. Politicians and urban planners are responsible for planning and implementing such local economic development programmes.

Part of national plans should be the reorientation of the health system and the health services to define violence as a public health issue. Health workers are regularly among the first persons who come into contact with victims of violence, and they have a unique potential in the community to help those at risk.

Through adults, adolescents are being assigned to a specific social, political, economic and legal status. Obviously, youth violence has an own quality and has to be considered a typical form of juvenile delinquency which is often attributable to age-specific risk-taking behaviour. In jurisdiction, youth and adult violence should therefore be judged and treated differently: Educational endeavours should be given priority over punishment and deterrence. The introduction of a juvenile justice system can offer different adequate entry points for prevention and control.

4.2 Different settings: action taken at the local level

At the city level, different local settings are a good starting point for taking action. Especially integrated intersectoral approaches and measures to overcome intra-urban differentials in socio-economic living conditions should be considered to solve urban health problems (Stephens 1995).

Experiences with school programmes show that schools offer efficient and practical means to prevent and reduce violence. Particularly evaluations of school-based anti-violence trainings and other measures reveal promising results. Schools can create public policy that promotes health,
develops skills, reorients health services, develops supportive environments and mobilizes community action (WHO and UNESCO 1998). In collaborative community-wide activities and projects, adolescents learn social skills to change community norms and barriers which cause violence. Schools certainly cannot control many factors that contribute to violence. However, they can address a broad range of behaviours, communication patterns, skills, attitudes and school conditions that support and perpetuate violence (WHO and UNESCO 1998).

Community and neighbourhood initiatives are another way to involve civil society and non-governmental organizations. Moreover, it is the responsibility of urban planners to exchange with at-risk populations in their communities, and they should take into account crime reduction activities as part of their routine planning duties (Rycus 1998). Such special possibilities of the city government to tackle violence are particularly demonstrated in the Healthy City approach of WHO and the Safer Cities Project of the United Nations Centre for Human Developments (HABITAT) (Vanderschueren 1998).

Further steps which could be implemented by municipalities are security system improvements and local zero-tolerance policies. The city government also could offer design guides for physical security devices (e.g. video control of public places and private properties, illuminated public spaces, "open" and "friendly" architecture) that may prevent and reduce (not just displace) crime without necessarily giving rise to a "siege mentality" (Rycus 1998).

4.3 Measures at the individual level

At the individual level, a comprehensive support programme for victims is required, including training of police and counsellors as well as establishment of emergency and rehabilitation services (Wolfe et al. 1997b). Particularly the concept of resilience and the promotion of protective factors play an essential role. The concept of resilience refers to "[...] the capacity of a child, a person, a family, a group, not only to resist adverse events but also to build up a strong and emphatic personality or behaviour" (WHO 1997c).

Resilient adolescents show social competence despite the presence of adverse conditions e.g. in the form of social, psychological or biological shortcomings. Protective factors range from genetic-constitutional determinants, personality dispositions, social support in the family and peer groups, to institutional and to some degree societal factors (cf. Lösel and Bender 1997; Lösel 1994).