Suicide in Eastern Europe, the CIS, and the Baltic Countries: Social and Public Health Determinants

A Foundation for Designing Interventions

Summary of a Conference

Leslie Pray, Clara Cohen, Ilkka Henrik Mäkinen,
Airi Värnik, and F. Landis MacKellar, *Editors*

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Preface

Changes in suicide mortality in Eastern Europe, the Baltic Countries, and the Commonwealth of Independent States (CIS) over the past several decades have been abrupt and almost unprecedented in magnitude. The region leads the world in suicide. Roughly 100,000 persons die annually of suicide among the 360 million inhabitants of Russia, Estonia, Latvia, Lithuania, Belarus, Ukraine, Kazakhstan, Moldova, Poland, Czech Republic, Slovak Republic, Slovenia, Hungary, Croatia, Romania, Serbia-Montenegro, Bosnia-Herzegovina, Macedonia, Albania, and Bulgaria, corresponding to 1/8 of the estimated world suicide among 6% of the world population. The causes for the increase have not been researched systematically, but hypotheses ascribe the changes to societal transformations associated with the breakdown of the Eastern Bloc.

About the Conference

From September 14 to 15, 2010, suicidologists and other scholars and professionals with expertise in suicide and suicide prevention gathered in Tallinn, Estonia, to discuss the evidence base for social and public health determinants of suicide in the Baltic States, the CIS, and Eastern Europe, and to use this expanded knowledge as a foundation for improved prevention policies and programs. A convenience sample of eight countries was chosen for the analysis; seven of the countries—Estonia, Lithuania, Latvia, Russia, Ukraine, Hungary, and Belarus—have exhibited the highest suicide rates during the transitional period, and an eighth, Poland, has exhibited a lower-than-average suicide rate for all of Europe, as a contrary case. Conference themes included geographic data analysis for each country as well as an examination across the region of the links between suicide and such factors as culture, attitudes, religion, socioeconomic status, alcohol consumption, social change, civil society, and the mass media. The conference also explored high-risk groups and sex-, age-, and residence-dependent patterns of suicide prevalence in the region.

More generally, the conference served as a venue for exploring the phenomenon of suicide from a broad, multidisciplinary perspective; promoting communication and cooperation among scholars from different countries; and developing more systematic thinking about the relationship between society and suicide in the Baltic States, the CIS, and Eastern Europe. The conference was co-sponsored by the

Swedish Foundation for Baltic and East European Studies through the Stockholm Centre on Health of Societies in Transition (SCOHOST), Södertörn University, Stockholm, Sweden; the International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria; and the Estonian-Swedish Mental Health and Suicidology Institute (ERSI), Tallinn, Estonia.

Organization of the Conference Summary

This report summarizes the presentations and discussions that took place during the conference. While this report was prepared by the editors, some of the material was enhanced with text from papers submitted by conference speakers. The conference summary is organized into chapters and sections on a topic-by-topic basis. Chapter 1 introduces the role of social factors in influencing suicide risk. Chapter 2 explores the variation in suicide mortality trends among the selected countries. Chapter 3 explores gender, age, and rural-urban variation in suicide mortality across Eastern Europe. Chapter 4 explores the relationship between suicide and social factors, including socioeconomic status, alcohol use, religiosity, social change, and psychosocial aspects. Chapter 5 addresses prevention policies and programs, contrasting medical approaches with public health approaches. Finally, Chapter 6 addresses research and data needs to inform the design of effective prevention policies. The conference agenda is included as Appendix A, the speakers' biographies as Appendix B, and a list of participants in Appendix C.

These proceedings summarize only the verbal or written statements of the conference participants. While the participants covered substantial ground, the information provided here is not intended to be an exhaustive exploration of the evidence base on the social and public health determinants of suicide in Eastern Europe, the CIS, and the Baltic States, nor do the ideas or policy suggestions put forth represent the findings, conclusions, or recommendations of a consensus committee process. Rather, they reflect the opinions of individual conference participants. Views or opinions expressed in this report do not necessarily represent those of IIASA, its National Member Organizations, SCOHOST, or ERSI.

Acknowledgments

We wish to express our deepest appreciation to the many individuals and organizations who generously gave their time to provide information and advice through participation in the conference. We thank the speakers for their hard work in pulling together excellent presentations for the conference. A list of conference speakers can be found in Appendix A.

We are indebted to the staff at the three partner institutions who contributed over the course of this project and the production of this summary. At SCOHOST, we give special thanks to Tanya Jukkala for background research she conducted. At ERSI, we thank Merike Sisask, Zrinka Laido, and Peeter Värnik for their attention to detail in organizing the conference. At IIASA, we thank Deirdre Zeller for her invaluable administrative help throughout the organization of the conference. We are deeply grateful to Clara Cohen, project Director, for her dedication in conceiving the workshop's agenda, bringing the partners together, responding to reviewers' comments, and finalizing the manuscript. We thank science writer Leslie Pray for her thoughtful and insightful approach in translating the presentations and discussions into a coherent and useful summary. We thank Maxine Siri for contributing careful editing assistance.

We are grateful to the following individuals for their thoughtful contributions to the design of the conference and framing of the agenda: Lanny Berman, José Bertolote, Thomas Bornemann, Pamela Collins, Diego De Leo, Malcolm Gordon, Jim Mercy, Jane Pearson, Dainius Puras, Yuri Razvodovsky, Jerry Reed, Maryann Robinson, Mark Rosenberg, Benedetto Saraceno, Norman Sartorius, Vanda Scott, Jürgen Sheftlein, Robert Van Vorren, and Jerry and Elsie Weyrauch.

Finally, we thank the sponsors that supported this activity. Financial support for this project was provided by the Swedish Foundation for Baltic and Eastern European Studies and by IIASA.

This report was independently reviewed in draft form by individuals selected for their technical expertise and diversity of perspectives. The purpose of the review was to provide critical comments to ensure that the report was a clear, effective, and well organized; that the presentation of material was balanced and fair; that the report accurately reflected the presentations, discussions, and papers of the conference; and that the perspectives shared were correctly attributed. The IIASA publications committee was responsible for ensuring that all review comments were carefully considered.

We wish to thank the following individuals for their review of this report:

Greg Fricchione, Massachusetts General Hospital and Harvard Medical School, USA

Mária Kopp, Semmelweis University, Hungary

Juris Krumins, University of Latvia

Kristian Wahlbeck, National Research and Development Center of Welfare and Health, Finland

The Way Forward

Many journal publications have raised the question of possible links between suicide and society, but few have followed through with more systematic analysis. The Tallinn conference was unique in representing the first time data from across the region have been assembled and examined collectively. We very much hope that this publication will inspire action and will serve as a useful resource among a broad array of stakeholders, including scientific researchers, donors, the World Health Organization, advocacy groups, the public health community, and decision makers everywhere, but particularly in the affected region. We hope the report will also have broad appeal among other countries where links between social transformation and suicide are being examined.

Airi Värnik
Ilkka Henrik Mäkinen
F. Landis MacKellar
Co-chairs

Executive Summary

While suicide is a major public health problem worldwide, the countries of the former Soviet Union, including the Baltic States and the Commonwealth of Independent States (CIS), have some of the highest rates in the world. High suicide rates across Eastern Europe have been correlated with the post-Soviet transitional period and the societal changes associated with that transition. Many scholars have speculated that the sudden collapse of the paternalistic Soviet system and the introduction of a market economy—and the psychosocial distress that ensued—contributed to the suicide mortality crisis that most of the former Soviet republics experienced in the 1990s. It is unclear whether the transitional period has ended or is still ongoing. While suicide mortality rates in many countries have declined since then, they remain alarmingly high. In some countries, such as Belarus, the rates have increased.

From September 14 to 15, 2010, suicidologists and other scholars and professionals with expertise in suicide and suicide prevention gathered in Tallinn, Estonia, to discuss the evidence base for social and public health determinants of suicide in the Baltic States, the CIS, and Eastern Europe. The participants identified research and data gaps that, if filled, would strengthen the foundation for developing effective suicide prevention policies and programs. This report summarizes the presentations and discussions that took place during the conference.

Country Trends

The analysis focused on a convenience sample of seven countries that have exhibited the highest suicide rates during the transitional period—all three Baltic States (Estonia, Latvia, and Lithuania), all three Slavic countries (Belarus, Russia, and Ukraine), one former Soviet satellite country (Hungary), and one satellite country (Poland) that has exhibited lower-than-average suicide rates. Despite commonalities in suicide trends across Eastern Europe, particularly with respect to gender and age, Ilkka Henrik Mäkinen, in his presentation on society and suicide mortality in Eastern Europe, stressed that it is the differences that prevail.

Not until 1988, during the Gorbachev reform era and at the height of the sociopolitical phenomenon known as *perestroika*, were statistical data on suicide made accessible to researchers. The initial interest was in Estonia, where suicide rates were especially high (33–35 per 100,000 population). At the Tallinn conference, Luule Sakkeus and Peeter Värnik summarized data on suicide trends in

Estonia, noting the dramatic decline in suicide mortality rates since the mid-1990s. Like the East European region as a whole, Estonia's suicide rates continue to exhibit striking gender differences, with male rates at just over 30 per 100,000 population since 2006 and female rates at just under 15 per 100,000 since the mid-1990s. Again, like the East European region as a whole, Estonia's suicide rates exhibit significant age-related variation, with the highest male suicide mortality observed in the 45–54 age group. However, in comparison with the older age groups, suicide accounts for a higher proportion of total mortality among the 15–24 age group for females and males alike, underscoring the need to keep youth in mind when developing suicide prevention policies and programs.

As in Estonia, suicide rates in Latvia have been on the decline as well. However, as Juris Krumins remarked at the conference, although recent suicide mortality rates in Latvia are lower than they have ever been in the past four decades (e.g., reaching a low of 19.9 per 100,000 population in 2007), they are still among the highest in Europe, especially for men and in rural populations. (The 2004 European average was 17.1 per 100,000 population, while the 2009 rate was 22.9 completed suicides per 100,000 population, 40.0 for men and 8.2 for women). As elsewhere across Eastern Europe, not only are there significant gender differences but also significant differences in rural vs. urban suicide rates. While rural-urban mortality statistics are no longer collected by the Latvian Central Statistical Bureau, the last available data (2006) indicate that rural suicides are 1.4 times more frequent than urban suicides. One of the goals of the Latvian *Public Health Strategy 2002–2010*, the country's main public health policy planning document, was to reduce suicide mortality by 25% by 2010. While this goal has not been met, the 20% reduction that has been observed is considered a mark of success when compared to changes in other health indicators.

In Lithuania, the highest-ever reported suicide levels in men occurred in 1994 (87.7 per 100,000 population), with the highest-ever reported levels in women occurring in 1995 (15 per 100,000 population). Since then, as in Estonia and Latvia, rates have fallen. In 2008, suicide mortality for males was 58.7 completed suicides per 100,000 population and for females, 10.8, for a total of 33.1 suicides per 100,000 population, which nevertheless represents a 41% increase over 1988 (i.e., before the socioeconomic transition associated with the introduction of a market economy). Despite a recent decline in suicide mortality in Lithuania, suicide remains one of the leading causes of death in the able-bodied population, particularly men, and the country's suicide rate is one of the highest in Europe. As conference speaker Ramunė Kalėdienė noted, while Lithuania has implemented several suicide prevention programs in recent years, the lack of any evidence-based assessments makes it difficult to know which, if any, of the programs have actually contributed to the recent decline in suicide mortality in Lithuania.

Although suicide rates in Belarus were comparatively high, even during the late Soviet period, the alarming rise experienced during the post-Soviet period means that Belarus now has one of the highest suicide rates in the world. According to official statistics, the national suicide rate in that country increased by 13.2% (from 24.3 to 27.5 per 100,000 population) from 1980 to 2008. Today, the highest suicide rates are found among men in the 45–54 age group, a finding that Y.E. Razvodovsky argued at the conference could be related to high rates of alcohol consumption in the working-age male population. Razvodovsky pointed to several studies demonstrating a clear association between alcohol consumption and suicide.

As Alexander V. Nemtsov noted in his remarks, suicide trends in Russia over the past half century have fluctuated dramatically in both the male and female populations, gradually increasing from 1956 to an initial peak in 1984, followed by a sharp decline and then another increase to a second peak in 1994. The 1994 suicide mortality rate among men (81.7 per 100,000 population) was the highest recorded male suicide mortality rate in Russian history. After 1994, rates for both men and women fell to 46.7 per 100,000 population among men and 8.4 per 100,000 population among women in 2008. As in Belarus, a high percentage of suicides in Russia are alcohol-related. Like most East European countries, Russia exhibits wide geographic variation in suicide mortality. Despite an overall decline in completed suicides, rates in some areas like the Chita Region and the Republic of Sakha have climbed in recent years.

Since 1991, the first year of Ukraine's existence as an independent state, more than 225,000 people have died by suicide (according to official data). In 2009, that figure was 9,717—roughly 0.5% of the population. In her remarks at the conference, Galyna Pyliagina elaborated on how suicide rates in Ukraine vary by gender, with male suicide rates averaging 5.5 times the female rates in the period 1995–2009; by age, with highest rates in the 25–64 age group; by rurality, with rates in rural areas increasing over time; and geographically, with higher rates in more densely populated industrialized regions. Pyliagina speculated that the geographic variation may reflect regional differences in the nature of the economic problems that Ukraine has been experiencing. For example, industrialized regions experienced the rapid disintegration of well-organized economic processes.

Suicide trends in Hungary over the past 30 years have been markedly different from those in most other East European countries, particularly with respect to a steady and impressive 40% decrease in suicide mortality following a peak in 1984 (46.2 per 100,000 population). While the country's suicide mortality rate is still low compared to the European countries with the highest rates, it remains at a high 24.1 per 100,000 population (2006). Hungary still considers itself a "suicidal nation." Speaking at the conference, Katalin Kovács described Hungary's gender-, age-, and geography-related trends in suicide mortality. In her view, the most likely explanation for geographic variation is cultural norms regarding self-destruction.

Poland was the only country profiled at the Tallinn conference that is not considered a high-suicide-rate country, with a mean suicide rate of 15.2 per 100,000 population in 2000–2008. Nonetheless, as speaker Włodzimierz A. Brodniak explained, the country's suicide rate has been heavily influenced by socioeconomic changes over time, first in 1980–1981, when the Solidarity movement began and suicide mortality plummeted nearly 30%, and then again in 1990, when the new market economy was introduced and suicide mortality soared, increasing by 24%.

Gender, Age, and Rural-Urban Variation in Suicide Mortality

Designing and implementing effective suicide prevention programs requires knowing where and how to intervene, which in turn requires knowing whom to target. In his remarks, Kristian Wahlbeck called suicide in Eastern Europe a "gender health issue." As the country profiles demonstrated, East European males are especially vulnerable to suicidal behavior. Airi Värnik remarked that male–female ratios in suicide mortality in Lithuania, Belarus, Russia, Ukraine, and Poland range from 6.0 to 7.0. These values are in contrast to the 2.2–3.0 male–female ratios in the West European countries of the Netherlands, Norway, Sweden, Denmark, Belgium, and France. Suicide is also an age issue, with the highest proportion of suicide mortalities typically (but not always) occurring among older middle-aged adults.

Arguably, suicide is also a rurality issue, with a growing proportion of suicides occurring among individuals living in rural areas. Speaker Lyudmyla Yur'yeva used data from national statistical data offices, the scientific literature, and personal contacts to conduct a regional analysis of historical trends in urban and rural suicide mortality rates. She concluded that the overall increase in rural suicide mortality rates across Eastern Europe throughout the latter half of the 20th century resulted primarily from changes in male suicide mortality rates. Age also makes a difference, with the highest male–female suicide ratios in the rural 15–44 age group. For example, the highest mean male–female suicide ratios observed were in Estonia among rural males aged 35–44 (27.5:1). In addition to gender and age, other factors related to rural-urban variation in suicide mortality include marital status, employment level, and drug addiction. Yur'yeva stressed the need for more data to more fully understand the underlying factors that contribute to rural-urban variation, so that effective and appropriately focused suicide prevention policies and programs can be developed. Her presentation fueled some lively discussion on whether "rurality" is a suicide determinant in and of itself or a manifestation of other underlying factors. Conference participants identified several specific gaps in suicidology research, including problems with research methodology, that need to be addressed in order to tease apart the various components of rurality.

Social and Public Health Determinants of Suicide in Eastern Europe

Geographic variation in suicide rates among and within East European countries suggests that social factors likely play a key role in increasing, or decreasing, the risk of suicide. Indeed, an overarching theme of the Tallinn conference was the need to advance the study and prevention of suicide from a social, rather than a medical (or genetic), perspective. Both Ilkka Henrik Mäkinen and Jüri Allik discussed the connection between society and suicide and the history of research on that connection. More specifically, Allik described studies demonstrating seemingly paradoxical correlations between suicide and assorted personality traits. For example, there is a positive correlation between suicide rate and happiness level in industrialized nations. He concluded that suicides are associated with the relationship between individual-level happiness and the societal norm for happiness, not the absolute level of happiness that a person is experiencing.

Yakov Gilinskiy used data from Russia to explore the connection between socioeconomic inequality/status and suicide. Despite a gradual decline in suicide mortality over the past decade, Russia still has one of the highest suicide rates in the world. Gilinskiy argued that this is because of the sweeping social change and growing economic polarization of the Russian population that has been occurring over the past two decades during Russia's transition to a "new society." He summarized evidence demonstrating that suicidal risk in Russia depends on educational level, with the highest risk among the least educated; professional status, with the highest risk among the unemployed; and, interestingly, the degree of discrepancy between educational level and professional status. Gilinskiy also expounded on the generality of the results to other countries resulting from a growing proportion of "excluded" individuals worldwide.

András Székely used data from Hungary to further explore the massive social transition that has been occurring across Eastern Europe. Not only has Hungary, like Russia, witnessed a tremendous increase in socioeconomic inequality over the past couple of decades, it has also experienced growing demoralization (i.e., increasing anomie), rising unemployment and other work-related changes (e.g., greater insecurity, less perceived control in work, overwork, income inequities), and increasing family instability at a time when the importance of family as a form of social support has been growing. Székely described the results of surveys conducted in 1995 and 2002 to get a better sense of the relationship between suicidal behavior and various psychosocial and demographic factors. He and his colleagues identified inadaptive ways of coping (i.e., alcohol and drug abuse), with family problems (e.g., lack of help, family history of suicide), poor social support, hostility/anomie/no purpose in life, depression, low educational level, and unemployment being the most predictive.

Merike Sisask described evidence-based conclusions from several recent studies on the relationship between religiosity and attempted and completed suicides. Religious context (i.e., prevalence of religion in a country) is a major cultural factor in the determination of suicide. In the former Soviet Union, regions with Christian backgrounds (i.e., the Baltic and Slavic countries) have higher suicide rates than regions with other religious backgrounds, although the varied impact of Christianity among countries and religions does not sufficiently explain all observed regional differences (e.g., in Caucasia). Religious heritage does not explain differences in suicide rates among the Baltic States, and the so-called "Baltic Suicide Paradox"—i.e., high suicide rates in the Baltic States despite the purportedly protective effect of Catholicism—needs further research. Religion has exerted an ideological influence on suicide attitudes in Western Europe but not in most of Eastern Europe (except Poland). Suicide rates in Europe correlate positively with statements expressing religious inclination and inversely with secular, self-centered statements, and subjective religiosity (i.e., considering oneself to be a religious person) may serve as a protective factor against suicide in some, but not all, countries.

Finally, in his remarks, William Pridemore elaborated on three peer-reviewed scientific studies from two countries, Russia and Slovenia. The studies were not only from different countries; they relied on different types of data and methods. Nonetheless, they all reached the same conclusion: that, at the population level, alcohol consumption is a significant determinant of suicidal behavior. Collectively, they provide a solid evidence base for moving forward in the development of suicide prevention policy centered on alcohol control. Pridemore cautioned, however, that a population-level association between alcohol consumption and suicide mortality does not mean that other equally important individual, familial, cultural (e.g., "value of life" and what people drink), or other effects should not be considered.

Suicide Prevention Policies and Programs: Accomplishments and Gaps

After examining suicide patterns across Eastern Europe and the wide range of socioeconomic and cultural factors that may be responsible for suicidal behavior, conference participants shifted their attention to suicide prevention. The dialogue covered three major overarching themes:

1. *The importance of socially based prevention interventions* (i.e., as opposed to, or in addition to, medically based interventions), which both Wahlbeck and Székely emphasized. Suicide prevention, part of the WHO Mental Health Action Plan for Europe, is a multisectoral strategy built on a combined health care/public health suicide prevention approach. Wahlbeck summarized the WHO strategy and discussed evidence suggesting that investing

in social protection not only reduces suicide mortality but may do so more than investing in health care does.

2. *The importance of implementing a multilevel approach to suicide prevention*, which both Danuta Wasserman and Wahlbeck stressed.

3. *The need for more research on effective suicide prevention measures*, so that appropriately targeted interventions can be developed and implemented.

Wasserman emphasized that a wide range of effective evidence-based suicide prevention interventions are available for adoption by East European countries. Some fall under the purview of the more traditional health care approach to suicide prevention (also known as the "medical model"), which involves providing greater access to and improving the quality of health care services for individuals at high risk of suicide. Others fall under the purview of the public health approach to suicide prevention, which involves implementing suicide prevention strategies targeting the population as a whole and premised on the importance of reaching all at-risk individuals, including the many who are not accessing health care services. Wasserman provided an overview of evidence-based interventions from both camps.

Following Wasserman's talk, there was lively discussion about the need for comparative international research to test the effectiveness of various interventions in different political, cultural, social, and economic environments. While Wasserman advocated the adoption of evidence-based interventions, Wahlbeck cautioned that much of the available evidence on the effectiveness of the different interventions is based on data collected outside of Eastern Europe and that the results of those studies are not always transferable to East European countries.

As an example of a socially based suicide prevention program, Maire Riis described the ongoing grief support work being offered the Crisis Program for Children and Youth, a nongovernmental organization (NGO) in Tallinn, Estonia. This NGO's focus is on grief support, especially for children and adolescents who have lost a family member through some sort of tragedy (including suicide). Since its founding in 1994, the program has provided grief support to 600 children and adolescents. It is the only NGO in Estonia with concentrated knowledge of and experience with grief and trauma among children and youth. Methods include grief therapy for both individuals and groups; trauma therapy (e.g., Eye Movement Desensitization and Reprocessing); psychoeducation (i.e., tailored to the cause of death); parent guidance; expressive arts therapy; and rituals.

Next Steps for the Scientific Community: Research and Data Needs for Designing Effective Suicide Prevention Strategies

While research on the association between social factors and suicide has a century-long history, the evidence base is far from complete. This is true even for the most- and longest-studied social factors (e.g., religiosity, social change). In the final session of the conference, participants identified and discussed gaps in the evidence base that, if filled, would strengthen the foundation for designing effective suicide prevention policies and programs. The first portion of the session revolved around general methodological challenges that cut across all areas of suicidology research, such as the need for more comparative and multidisciplinary research. The remainder of the discussion revolved around research and data needs in connection with five major social and public health determinants of suicidal behavior: alcohol, religion, social change, unemployment, and depression.

Several major themes emerged from the discussion:

- There is an urgent need for a more comparative approach to understanding suicide determinants and evaluating the effectiveness of implemented suicide prevention policies in different economic, social, and cultural environments. The international network of suicidology researchers should be expanded to include greater representation from the East European, CIS, and Baltic countries.
- The field of suicidology would benefit from a more multidisciplinary approach, with contributions from historians, economists, anthropologists, professionals from civil society organizations, and other experts spanning a wide range of relevant (nonmedical) expertise.
- It would be helpful to identify specific target groups when examining the association between social/public health factors and suicidal behavior.
- It is important to explore individual-level, as well as group-level, factors when exploring associations between social/public health factors and suicidal behavior.
- When discussing suicidal behavior, it is important to differentiate between completed and attempted suicides.
- There is a need to determine which evidence is most relevant to suicide prevention policy.
- Data reliability issues need to be resolved.

1
Introduction

Suicide is a major public health problem worldwide. According to the World Health Organization (WHO), suicide rates have risen by 60% across the world over the past 45 years, with suicide now representing about 2% of years of life lost[1] (WHO, 2012). Every year, nearly 1 million people die by suicide, which translates into about 13 suicide deaths per 100,000 population. Suicide deaths are just the tip of the iceberg, with attempted suicides being an estimated 1,040 times more frequent than completed suicides (Schmidtke *et al.*, 2004). In the past, suicide rates were highest among older males. Suicide is still very much a gender health issue, with men committing suicide four or more times more often than women in 17 countries. Eleven of those 17 are in Eastern Europe (WHO, 2012). Likewise, in many countries, suicide rates are still highest among older middle-aged adults. However, rising suicide rates among young people have led to suicide ranking among the three leading causes of death in the 15–44 age group in some countries. These trends are particularly worrisome in the WHO European Region, where suicide rates are among the highest in the world. Suicides account for 14% of years of life lost among European men aged 15–29, representing a huge loss of human capital (WHO, 2008).

1.1 Suicide in Eastern Europe

Every year, an estimated 150,000 people in the WHO European Region commit suicide—approximately one person every three minutes. Suicide mortality rates in the region are highly variable, both among and within countries, with higher rates in the countries of the former Soviet Union, including the Baltic States and the Commonwealth of Independent States (CIS) (see *Figure 1.1*). The high rates across Eastern Europe have been correlated with the post-Soviet transition period and the societal changes associated with that transition (Mäkinen, 2000 and 2006). The transitional period began during *perestroika* ("slow transition") in 1985 and the dissolution of the Soviet Union in 1991 ("rapid transition"). The latter was followed by a decade of remarkable transformation in almost every aspect of life, accompanied by profound socioeconomic and ideological changes. Several scholars have

[1] "Years of life lost" is a measure of premature mortality that takes into account both the frequency of deaths and the age at which death occurs.

Figure 1.1. Map of suicide rates worldwide, based on most recently available data (2009). Source: WHO.

argued that the "shock therapy" economic reform and sudden collapse of the paternalistic Soviet system—and the ensuing psychosocial distress—contributed to the suicide mortality crisis observed in most of the Soviet republics in the 1990s (Leon and Shkolnikov, 1998).

In 1984, among the 28 independent countries that constitute what Ilkka Henrik Mäkinen referred to as "political Eastern Europe," [2] the mean suicide mortality was 19.6 per 100,000 population, compared to the European average of 18.8. Between 1984 and 1989, suicide mortality across Eastern Europe fell by 16% on average. Between 1989 and 1994, rates across Eastern Europe rose again by 14% overall, with the greatest increase in Lithuania (72%). Between 1994 and 1999, rates again declined, but only by 4% overall, with the greatest decrease in Moldova (33%). Between 1999 and 2004, rates fell even further, with an overall decrease of 12% and the greatest in Estonia (30%). Since 2004, overall rates have dropped another 10%, with an exceptionally steep decline in Estonia (another 28%).

Today, despite declining rates over the past decade and a half, suicide rates in Eastern Europe remain relatively high. This is especially true for men. Eight of the world's 10 leading male suicide countries are in Eastern Europe. According to the most recently available WHO data, the 10 countries with the highest male suicide rates are, in descending order, Belarus (63.3 suicide deaths per 100,000 population), Lithuania (53.9), the Russian Federation (53.9), Kazakhstan (46.2),

[2] Mäkinen (2000) listed the 28 former Eastern Bloc countries as: Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Belarus, Bulgaria, Croatia, Czech Republic, East Germany, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, FYR Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenia, Ukraine, Uzbekistan, and Yugoslavia.

Sri Lanka (44.6), Hungary (42.3), Ukraine (40.9), Japan (35.8), Estonia (35.5), and Latvia (34.1).[3] East European countries account for six of the 10 countries ranked 11–20.

Not only are current (and recent) suicide rates in Eastern Europe higher than elsewhere in Europe, particularly among men, but changes in suicide rates in Eastern Europe over the past century have been different from those of much of Western Europe. Ilkka Henrik Mäkinen used three sets of data to illustrate the differences in suicide mortality between Eastern Europe and the rest of Europe over time (Mäkinen, 2004). First, suicide rates in Russia rose from 3.2 per 100,000 population in the 1880s to 37.8 per 100,000 in 2000, marking a dramatic change compared to most of the rest of Europe. If included in a select list of 10 (West) European countries,[4] Russia would have ranked ninth in the 1880s and first in 2000. In contrast, most of the 10 West European countries have held approximately the same ranking over the past century, with Finland and Ireland being two notable exceptions. Second, a comparison of changes in suicide mortality between 1910 and 1994 in four selected East European countries (Russia, Belarus, Ukraine, and Lithuania) and suicide rates in four West European countries (France, Germany, Italy, and UK) again shows how trends in Eastern Europe over the past century have been markedly different from those in Western Europe (see *Table 1.1*). Suicide rates in the four East European countries increased 6.8–20.5-fold between 1910 and 1994, while rates in the four West European countries largely decreased (16 to 28%) or increased only very slightly (3% increase in Italy). Third, there was a marked geographic shift (northward and eastward) between 1910 and 1989 in high-suicide-rate countries (Mäkinen, 2006). Again, the difference between suicide trends in Eastern Europe and the rest of Europe (and the world) has been associated with the social changes that occurred during and after the Communist period (Mäkinen, 2006).

1.2 The Social Basis of Suicidal Behavior

Geographic variation in suicide rates among and within the East European countries suggests that social factors likely play a key role in increasing, or decreasing, the risk of suicide. An overarching theme of the conference was the need to advance

[3] According to the most recently available WHO data, the 10 countries with the highest female suicide rates are, in descending order, Sri Lanka (16.8 per 100,000), China (selected rural and urban areas; 14.8), Republic of Korea (14.1), Japan (13.7), Switzerland (11.7), Guyana (11.6), China (Hong Kong SAR; 11.5), Hungary (11.2), Serbia (11.1), and Belarus (10.3). As with male suicide rates, East European countries account for six of the 10 countries ranked 11–20.

[4] The 10 countries are, in descending order of suicide mortality in the 1880s, France (20.7 per 100,000), Austria (16.1), Belgium (11.4), Sweden (10.7), England (7.7), Norway (6.8), Italy (4.9), Finland (3.9), Spain (2.4), and Ireland (2.3). Based on 2000 suicide mortality data, the order of the list changes to: Finland (21.5), Austria (17.5), Belgium and France (16.8 each), Ireland (12.1), Norway (11.9), Sweden (11.6), Spain (7.3), England/UK (7.2), Italy (6.1).

Table 1.1. Changes in suicide mortality over time in four East European vs. four West European countries. Source: 1910 data, East European countries: Russian Ministry of the Interior, 1912; 1910 data, West European countries: Diekstra, 1993; 1994 data: WHO "Health for All" database.

	Suicide Rate (per 100,000)		
Country	1910	1994	Change
Belarus	1.5	30.7	20.5x
Lithuania	2.9	45.8	15.6x
Russia	3.1 (European)	41.8	13.5x
Ukraine	4.0	27.1	6.8x
France	24.8	20.8	–16%
Germany	21.7 (averaged)	15.6	–28%
Italy	7.7 (averaged)	7.9	+3%
UK	10.3 (averaged)	7.5	–26%

the study and prevention of suicide from a social rather than a medical (or genetic) perspective. This is not a new way of thinking. There is a century-long history of viewing suicide through a social lens, beginning with the influential work of Émile Durkheim (Durkheim, 1897). A common theme is that environmental changes "release" vulnerabilities—and suicidal risk—in individuals. Some of those vulnerabilities may be genetic. Recent scholars have expressed hope that, in the future, advances in genetics will permit the rapid identification of individuals most likely to commit serious suicidal acts. Some suicidologists have also expressed hope that, much further down the line, advances in genetics will lead to the development of medicines that cure, or mitigate, suicidal behaviors. However, while there is great promise, Mäkinen observed during the conference that the results to date on the genetics of suicide are highly variable and inconsistent. To the extent that the data do associate a single gene or set of genes with a higher risk of suicidal behavior, the association is environmentally or socially dependent. Mäkinen emphasized that as research on the genetic basis of suicidal behavior moves forward, so too should research on the social basis of suicidal behavior. The two fields—the genetic and social study of suicide—can and should coexist and complement one another.

Despite a long history of looking at suicide through a social lens, there are very few large-scale socially based suicide prevention programs in Eastern Europe. This is evidenced by the fact that while there have been positive developments in suicide rates in general (i.e., falling suicide rates), the rank order of suicidal countries in Eastern Europe has changed very little. One would expect any existing large-scale national programs to have changed the rank order of countries, assuming such programs were successful (i.e., countries with effective programs in place should decrease in rank over time) (Mäkinen and Wasserman, 1997). Socially based suicide prevention is possible, if past experience with tuberculosis (TB) is any indication.

Socially based interventions led to a 95% decrease in TB mortality even before the causative agent of TB (*Mycobacterium tuberculosis*) was identified and before pharmaceutical interventions (chemotherapy and vaccination) were introduced into society.

The challenge with suicide, said Mäkinen, is the scarcity of research on suicidal behavior and a lack of clarity around its social and public health determinants. Developing and implementing effective suicide prevention policies and programs requires knowing which specific factors increase, or decrease, the risk of suicide—and under what circumstances. Even for determinants well covered in the scientific literature (e.g., alcohol consumption, unemployment, religiosity, social change, mental illness), unanswered questions abound.

Some of the challenge stems from the reality that statistical data on suicide morbidity and mortality were kept secret in the former Soviet Union. Not until 1988 during the Gorbachev reform era and at the height of *perestroika* were statistical data on suicide made accessible to researchers. The initial interest was in Estonia, where suicide rates seemed particularly high (33–35 per 100,000 population). Even so, the available data are limited. Lyudmyla Yur'yeva, for example, pointed out that, at least with respect to urban/rural suicide data, there is evidence to suggest that the Soviet Union's National Statistical Office registered only urban suicides for much of the early 20th century and that data on suicide mortality in rural areas was not collected until 1956 (Bogoyavlenskiy, 2001). Fortunately, what little data are available from that period have been deemed reliable (Wasserman &Värnik, 1998). William Pridemore cautioned that in some countries, post-Soviet data may not be reliable. Specifically, he questioned the validity of the data used to demonstrate the recent decline in suicide mortality in Russia. Not only did data collection deteriorate during the transitional period, there was no pressure to falsify data prior to the transition because data on violent deaths were not made publicly available. Even now, some suicide mortality data are difficult to collect. For example, at least one country, Latvia, no longer keeps records on rural-urban suicide mortality rates. Lack of clarity around the relationship between rurality and suicide makes it difficult to design effective suicide prevention programs aimed at minimizing rural suicide rates.

Arguably, some of the most effective suicide prevention policies in Eastern Europe have been alcohol-control policies. For example, Razvodovsky (2009) demonstrated that restricting alcohol availability in Belarus during the anti-alcohol campaign of 1984–1986 reduced the number of blood-alcohol-concentration (BAC)-positive suicide cases by 54.2%. Over the same period, the number of BAC-negative suicides decreased by only 7.1%. Again, however, as much as suicidologists know about the link between alcohol consumption and suicidal behavior, there are still far more questions than answers. Importantly, most of the evidence linking excessive alcohol consumption to suicide mortality is based on population

data. William Pridemore cautioned that a population-level association between alcohol consumption and suicide mortality does not mean that other equally important individual, familial, cultural, and other factors should not be considered when designing and evaluating suicide intervention programs.

Not only is there an urgent need for more research on suicide determinants, there is also an urgent need for more research on the effectiveness of implemented suicide prevention policies. In other words, what works, what doesn't work, and under what circumstances? As with alcohol consumption and some other suicide determinants, while there is a large and substantial body of evidence on the effectiveness of various suicide prevention interventions, there are also substantial gaps in that evidence. In particular, much of the evidence base for effective suicide prevention derives from data collected in the United States or Western Europe. However, research findings are not always transferable to East European countries with high suicide rates because of political, socioeconomic, and cultural differences. The evidence base needs to be broadened through comparative international research so that effective suicide prevention policies can be developed and implemented across a range of environments and countries. Involving suicide researchers from Eastern Europe, the CIS, and the Baltic States in this effort would be enormously valuable.

When suicidologists convened in Tallinn, Estonia, in September 2010 to discuss the evidence base for social and public health determinants of suicide in the Baltic States, the CIS, and Eastern Europe, they presented, discussed, and debated two major types of evidence: (1) data on associations between social/public-health factors and suicidal behavior, mostly at the country level but also at the regional level; and (2) data on the effectiveness of the suicide prevention policies already implemented.

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2
Suicide Mortality in Eastern Europe

> *The distribution of suicide mortality demonstrates large and persistent differences between nations . . .. Not only the suicide rates, but also the distribution of suicides in the population, vary greatly between countries.*
>
> – Mäkinen (2000)

Despite commonalities in suicide trends across Eastern Europe, Ilkka Henrik Mäkinen stressed that it is the differences that prevail. Country-specific data reveal extensive variation in associations between suicide mortality and such demographic and socioeconomic factors as age, gender, marital status, educational level, alcohol consumption, and unemployment. There is likewise extensive variation in the degree to which these associations change over time. While some countries exhibit similar trends, others display unique patterns. This chapter explores some of the country-level variation by examining suicide trends in eight countries: all three Baltic States (Estonia, Latvia, and Lithuania), all three Slavic countries (Belarus, Russia, and Ukraine), and two former Soviet satellite countries (Hungary and Poland). Seven of these countries (all but Poland) have exhibited the highest suicide rates in Eastern Europe over the past three decades (i.e., during the post-Soviet transitional period). Poland was the only country profiled at the Tallinn conference that is not considered a high-suicide-rate country, with a mean suicide rate of 15.2 per 100,000 population in 2000–2008. Nonetheless, as with the other countries represented in Tallinn, Poland's suicide rate has been influenced very heavily by socioeconomic changes over time.

2.1 Suicide Trends in Estonia, 1965–2009[1]

Having had one of the world's highest suicide rates in the past, averaging 33 suicides per 100,000 population between 1965 and 1985 (Värnik, 1991), Estonia has experienced a very rapid reduction in suicide mortality since the mid-1990s, with the national suicide rate now approaching the European average. Overall mortality has also undergone a significant decline.

[1]This section summarizes the information presented by Luule Sakkeus and Peeter Värnik at the Tallinn conference.

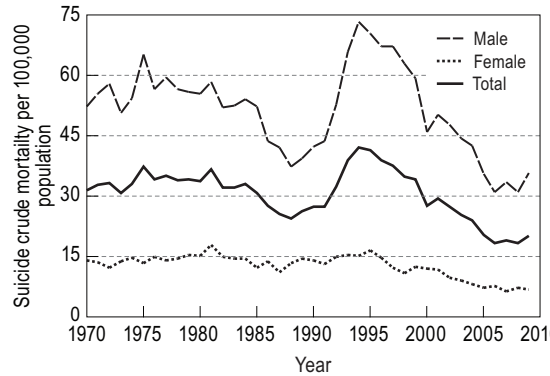

Figure 2.1. Suicide crude mortality per 100,000 population, in Estonia, 1970–2009. Males, females, and total population. Source: Statistics Estonia, www.stat.ee.

2.1.1 Gender- and Age-Related Suicide Trends

Like the East European region as a whole, Estonia's suicide rates exhibit striking gender differences (see *Figure 2.1*). Male suicide rates fluctuated between 45 and 60 per 100,000 population from 1970 through the mid-1990s, later falling to just over 30 per 100,000 by 2006, where they have since remained. Female suicide rates hovered around 15 per 100,000 between 1970 and the mid-1990s and have halved since then.

Also, like the East European region as a whole, Estonia's suicide rates exhibit significant age-related variation—especially among males. When male suicide rates are compared to the European average, the 45–54 age group exhibits the greatest mortality. Over time (between 1970 and 2006), male suicide mortality trends for the 24–55 age group and the 55 and over age group are very similar, especially compared with the much lower rates in the 15–24 age group (see *Figure 2.2*). During *perestroika* (the restructuring that occurred between 1985 and 1991), a gradual, but marked, decline in suicide rates occurred in the 24–55 year age group (Värnik, 1991). The youngest (aged 15–24) and oldest (aged 75 and over) generations had virtually the same rates and exhibited similar changes in rate over time.

Although older age groups have higher suicide mortality rates, when evaluated as a proportion of total age-specific mortality rates (ASMR), suicide ASMR in the 15–24 age group for both the male and female population accounts for a greater proportion of total mortality (see *Figure 2.3*). This observation underscores the need to consider adolescents and young adults when designing and evaluating suicide prevention programs.

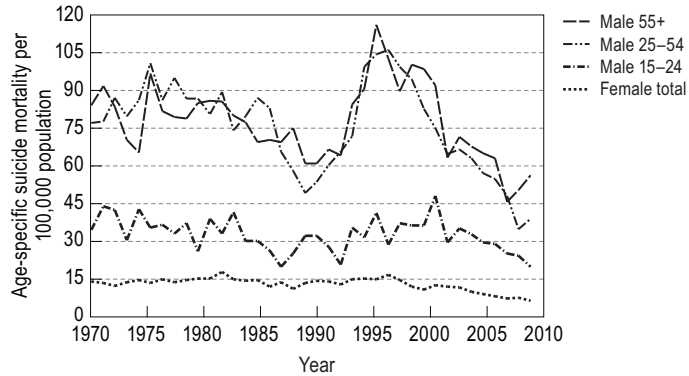

Figure 2.2. Age-specific suicide mortality rates (deaths per 100,000 population), selected age groups for male and female population over time. Source: Statistics Estonia, www.stat.ee.

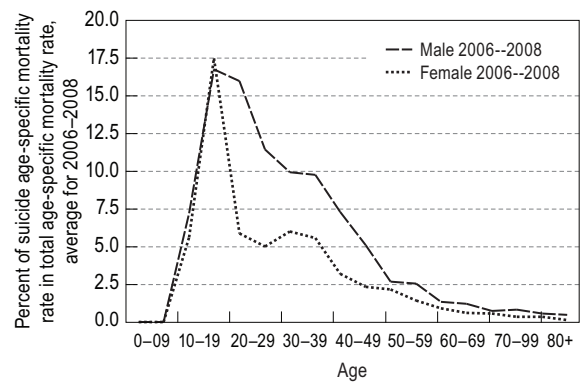

Figure 2.3. Proportion of total age-specific mortality rate (ASMR) attributed to suicide, by age and gender. Source: Statistics Estonia, www.stat.ee.

2.1.2 Variation among Nationalities

During the Soviet era, Russians in Estonia had a lower suicide rate (24.4–31.1 per 100,000 population) than Estonians (26.4–32.0 per 100,000), which may have resulted from the Russians' privileged status. Russian immigrants in Estonia received better salaries, housing, and other social benefits than local populations did. Moreover, since there was no need for social integration or acculturation, Russians easily maintained their sense of ethnic identity and confidence in belonging to a privileged class. However, after Estonia regained its independence in 1991, suicide rates among Estonian Russians rose significantly, to 34.0–43.3 per 100,000 population. Rates among Estonians rose only slightly, to 30.4–38.0 per 100,000.

The increase in suicide mortality among Russian immigrants and the pronounced difference in suicide mortality between the Russian immigrant and native, mostly Estonian, populations may have resulted from the overall turmoil during the transition period, the loss of Russians' privileged status, and the stress associated with that loss (Värnik *et al.*, 2005).

2.1.3 Suicide Methods

In the male population, hanging is overwhelmingly the most common suicide method (82% in 2008), with firearms and explosives the second most common (10.1% in 2008). In the female population, hanging, again, is the most common method (77.4% in 2008), followed by self-poisoning with drugs (13.2% in 2008) and jumping from heights (5.7% in 2008). The proportion of female suicide mortality caused by self-poisoning with drugs has increased over time.

2.1.4 Suicide Prevention Projects

Many of the suicide prevention programs of the Estonian-Swedish Mental Health and Suicidology Institute (ERSI) in Estonia are European Commission projects. They include:

- A European platform for mental health promotion and mental disorder prevention: indicators, interventions and policies (IMHPA), 2002–2007
- Implementation of Mental Health Promotion and Prevention Policies and Strategies in EU Member States and Applicant Countries (EMIP), 2005–2006
- Monitoring suicidal behavior in Europe (MONSUE), 2005–2010
- European Alliance Against Depression (EAAD), EAAD I (2004–2005) & EAAD II (2006–2008)
- Optimized suicide prevention programs and their implementation in Europe (OSPI-Europe) – FP7, 2008–2012
- Saving and Empowering Young Lives in Europe (SEYLE) – FP7, 2009–2011
- Working in Europe to Stop Truancy Among Youth (WE-STAY) – FP7, 2010–2013
- Suicide Prevention by Internet and Media Based Mental Health Promotion (SUPREME), 2010–2012

Box 2.1. Gender- and Age-Related Suicide Mortality in Estonia: Middle-Aged Men.

Like the East European region as a whole, Estonia's suicide rates exhibit dramatic gender differences, with male rates at just over 30 per 100,000 population since 2006 and female rates under 15 per 100,000 since the mid-1990s. Estonia's suicide rates also exhibit significant age-related variation, with the highest male suicide mortality observed in the 45–54 age group. Compared to the older age groups, suicide accounts for a higher proportion of total mortality among the 15–24 age group for both males and females, underscoring the need to also keep youth in mind when developing suicide prevention policies and programs.

- Promoting and protecting mental health - supporting policy through integration of research, current approaches and practice (ProMenPol) – FP7, 2007–2009
- Training for Mental Health Promotion (T-MHP), 2010–2012
- Mental Health Promotion Handbooks (MHPHands), 2010–2013

Additional ERSI suicide prevention projects include a research project on Estonian suicide trends during the new independence period and associations between suicidal behavior and various social, political, economic, and public health indicators (ETF grant 7132, 2007–9); and a research project on the etiology of violent behavior (Ministry of Defense grant 386/0807, 2008–9).

To address media reporting on suicide, ERSI has translated and disseminated the WHO guidelines for media reporting, sponsored three master's theses on media reporting of suicide, held seminars for journalists, and directly approached journalists who have mishandled suicide in their reporting.

2.2 Suicide Trends in Latvia[2]

Suicide mortality in Latvia has undergone several major changes since the mid-1960s (see *Figure 2.4*):

1. Suicides increased by 25% through the mid-1970s.

[2]This section summarizes Juris Krumins' presentation on suicide trends in Latvia. Some of the text has been enhanced with details from Krumins' submitted paper.

2. Between 1974 and 1984, the rate stabilized at the relatively high level of 32–34 deaths per 100,000 population (CSB of LSSR, 1968–1989).

3. During the four years of Gorbachev's anti-alcohol campaign, suicide mortality fell sharply—by almost one-third—dropping below its mid-1960s level (Krumins, 1993).

4. The termination of Gorbachev's anti-alcohol campaign and increased consumption of home-brewed alcohol, surrogates, and drugs—coupled with rapid sociopolitical change and a sharp economic downturn associated with the introduction of a market economy—led to an increase in suicide mortality and a peak of over 40 deaths per 100,000 population in the period 1993–1995. The peak in the standardized death rate (SDR) from suicide mortality at the start of the 1990s—not just in Latvia, but in all three Baltic countries—coincided with a decline in the human development index and in real gross domestic product (GDP) per capita and an increase in selected alcohol-related standardized death rates.

5. From the mid-1990s through the mid-2000s, suicide mortality decreased. Greater socioeconomic development influenced the health and mortality of the Latvian population, including mortality from suicide and self-inflicted injury, leading to the lowest recorded suicide mortality rates since the mid-1960s (19.9 per 100,000 population in 2007) (CSB, 1995–2011).

6. Since the onset of the economic recession in 2008–2009, suicide mortality increased again, reaching 23 per 100,000 population. The 2010 rate was 19.4 completed suicides per 100,000 population (36.2 for men and 5.1 for women) (CSB, 1995–2011).

While recent suicide mortality rates in Latvia are lower than they have ever been in the past four decades, they are still among the highest in Europe, especially in men and rural populations. For both men and women, the standardized death rates (i.e., age-adjusted death rates) from suicide are much higher than their respective European averages (WHO, 2011). Suicide has played a significant role in changes in life expectancy in Latvia for both men and women, particularly among the working-age groups. In the male population, suicide mortality has accounted for some 20–25% of total mortality from external causes (in the period 1980–2010); and in the female population, for about 13–20% of deaths from external causes (again, in the period 1980–2010).

2.2.1 Rural-Urban Differences in Suicide Mortality

As elsewhere across Eastern Europe, there are significant rural-urban differences in suicide rates. From the mid-1960s onward, rural excess suicide mortality grew until

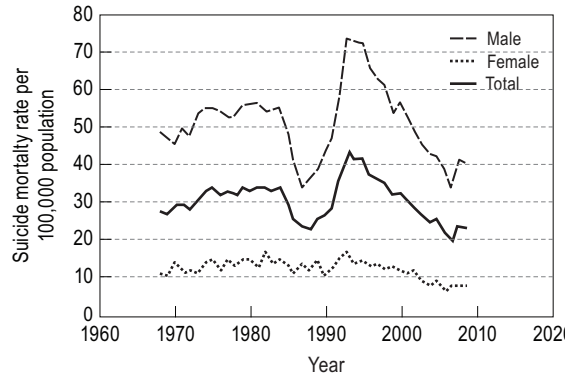

Figure 2.4. Suicide death rates per 100,000 population by sex, Latvia. Source: Latvian CSB database www.csb.gov.lv/DATABASEEN/; Demographic Bulletins and Demographic Yearbooks. Riga, CSB.

peaking in 1984 (absolute difference between urban and rural suicide rates reached 29.3 per 100,000 population, with a 2.17-fold higher rural suicide rate). During the anti-alcohol campaign, both absolute and relative rural suicide mortality declined, almost reaching the levels of the mid-1960s (in 1988, the absolute difference between urban and rural suicide rates was 5.3%, with a 1.25-fold higher rural suicide rate). During the first half of the 1990s, at the beginning of the transition to a market economy, both absolute and relative differences widened again. Absolute excess suicide mortality in Latvia's rural population subsequently stabilized to the average of the 1970s, and relative excess rural suicide mortality slowly declined, reaching the ratio observed at the beginning of the 1970s (1.4) in 2006. Unfortunately, in 2007 the Central Statistical Bureau stopped processing and publishing cause-of-death statistics by rural-urban place of residence.

The geographical pattern for suicide contrasts sharply division between the east and west of Latvia (Krumins *et al.*, 1999). A higher standard mortality ratio for suicide in the eastern part of Latvia—Latgale—is closely related to higher alcohol consumption, especially among men in rural areas.

2.2.2 Gender Differences in Suicide Mortality

As elsewhere in Eastern Europe, there are significant gender differences in suicide rates, with male mortality rates substantially higher than female rates. However, the ratio has fluctuated over time. From the mid-1960s until 1987–1989, male excess mortality decreased from a factor of 4.4 to 2.7. During the rapid transition to a market economy in the early 1990s, the gap between male and female suicide mortality widened, nearly reaching a factor of 5.0 in 1994. Male excess mortality

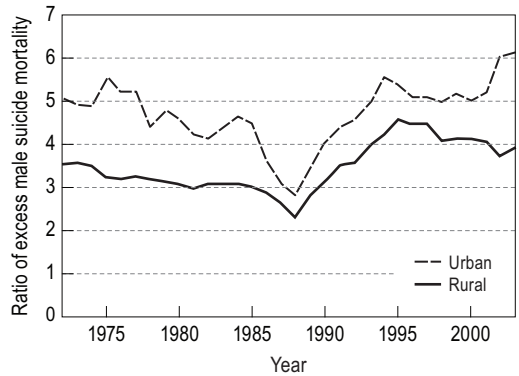

Figure 2.5. Male excess suicide mortality in rural vs. urban populations across Latvia. Calculations based on a 3-year moving average. Source: Demographic Bulletins and Demographic Yearbooks. Riga.

subsequently declined again slightly to about 4.0 on the eve of the 21st century. In 2004, male excess suicide mortality again reached a factor of 5.0. In 2006, due to a substantial decline in female suicide mortality, it reached a factor of 5.9. In the period 2007–2009, the male–female suicide ratio stabilized at a high of 4.4–5.0.

Since 1971, excess male suicide mortality has, without exception, been higher in the rural than the urban population, even though excess male suicide mortality has increased for both (see *Figure 2.5*). In the rural population, male excess suicide mortality reached its peak in 1996 (i.e., male suicide mortality was 5.83-fold higher than female suicide mortality). In the urban population, it reached its peak in 2003 (5.0). In the capital city of Riga, the gender difference in suicide mortality is smaller than the urban average.

2.2.3 Suicide Mortality by Age

The standardized death rate (SDR) for suicide and self-inflicted injury in Latvia is comparatively high in both the 0–64 and 65-and-over age groups, especially for men (WHO, 2011). Among men, according to the last available SDR for suicide and self-inflicted injury, only seven EU countries are ranked higher than Latvia for both age groups. Among women, 16 EU countries rank higher than Latvia for the 0–64 age group and 8 for the 65-and-over age group. However, the trend is shifting. Since the mid-1990s, the SDR for suicide among women in the 0–64 age group has rapidly been approaching the average for the new EU member countries. Among men in the same age group, although the gap between Latvia and the new EU member states is wider than it is for women, it is narrowing as well. Likewise, among both men and women in the 65-and-over age group, the gap

Box 2.2. Understanding Rural-Urban Variation in Suicide Mortality.

Even though Latvia's suicide mortality rates are lower than they have ever been in the past four decades, they are still among the highest in Europe—especially for men and in rural populations. Unfortunately, rural-urban mortality statistics are no longer collected by the Latvian Central Statistical Bureau. Latvia is not alone. There are other national databases, as well as the WHO European Mortality Database, that do not record rural-urban data. The lack of comprehensive rural-urban suicide mortality data makes it difficult to tease apart underlying factors that contribute to excess rural mortality and to appropriately target suicide prevention interventions.

between Latvian suicide mortality and the average level among the old EU member states is narrowing.

2.2.4 Latvia's Public Health Strategy to Reduce Suicide Mortality

One of the goals of the Latvian *Public Health Strategy 2002–2010*, the country's main public health policy planning document, was to reduce suicide mortality by 25% by 2010.[3] Following many public discussions, academic and statistical publications (Taube, 2005; PHA, 2008; Taube & Damberga, 2009; CHE, 2009), and governmental and non-governmental efforts focused on this issue, this goal has been met (CHE, 2010). The 25% reduction that has been observed is considered a mark of success when compared to changes in other health indicators. Many ministries and dozens of institutions helped to develop an *Action Program* for implementing the strategy, with the Ministry of Health responsible for its actual implementation. In August 2010, the preparation of a new *Public Health Strategy* was underway. In October, 2011, Cabinet Ministers issued regulation No. 504 on public health guidelines for 2011–2017 with statements on improvement of mental health.[4]

[3]The analytical assessment report of the Latvian Public Health Strategy, including the results on suicide rate reduction, was published following the Tallinn meeting and has been included in this report and the bibliography.

[4]This material was provided after the Tallinn conference by the author.

2.3 Suicide Trends in Lithuania, 1988–2008[5]

According to historical data from the Statistics Annals and Archives of the Statistics Department of Lithuania, the national suicide rate in pre-WWII independent Lithuania (1924–1939) was 5–10 per 100,000 population (Gailiene *et al.*, 1995). During the Soviet occupation, suicide mortality increased at a constant rate to 35.8 per 100,000 population in 1984. Gorbachev's 1985 anti-alcohol campaign and the shift to a more democratic society led to a lower suicide rate of 26.3 per 100,000 in 1986 (Petrauskiene *et al.*, 1995). Since then, Lithuania has experienced enormous political, social, and economic changes and has transitioned from a highly centralized Soviet republic to an independent state with a newly developing market economy. After the launch of political and economic reforms in 1989 and the collapse of the Soviet Union, living conditions in Lithuania changed dramatically. The Lithuanian population was exposed to a new and unfamiliar social environment and consequently experienced tremendous stress. The highest-ever reported suicide levels in men occurred in 1994 (87.7 per 100,000 population) and the highest-ever reported levels in women in 1996 (16.6 per 100,000). While suicide rates in Lithuania have fallen sharply since their peak in the mid-1990s, suicide is one of the leading causes of death in the able-bodied population today, particularly among men. Lithuania's suicide rate is among the highest in Europe.[6]

2.3.1 Gender Variation in Suicide Mortality

Typical of Eastern Europe is the striking difference between male and female suicide mortality in Lithuania, with age-standardized suicide mortality rates among males exceeding those among females 5.3–6.2-fold in 1988–2008. Male age-standardized suicide mortality reached its highest level in 1994 (89.0), while female mortality reached its highest level in 1996 (16.6). In 2008, age-standardized mortality for males was 55.9 per 100,000 and for females, 9.10 per 100,000—still 1.23 times higher for males and 1.26 times higher for females than in 1988.

2.3.2 Age Variation in Suicide Mortality

For males, suicide mortality was higher in 2008 than in 1988 for all age groups, with the highest rates over time observed in the 45–54 age group and the greatest increase in mortality over time occurring in the youngest and 75-and-over age

[5]This section summarizes Ramunė Kalėdienė's presentation at the Tallinn conference. Some of the text is enhanced with details from Kalėdienė's submitted paper. Most of the trends presented are for the period 1988–2008, with data derived from the computerized database of the Lithuanian Department of Statistics (whose files contain records abstracted from death certificates) and from the 1989 and 2001 censuses.

[6]This material was provided after the Tallinn conference by the author.

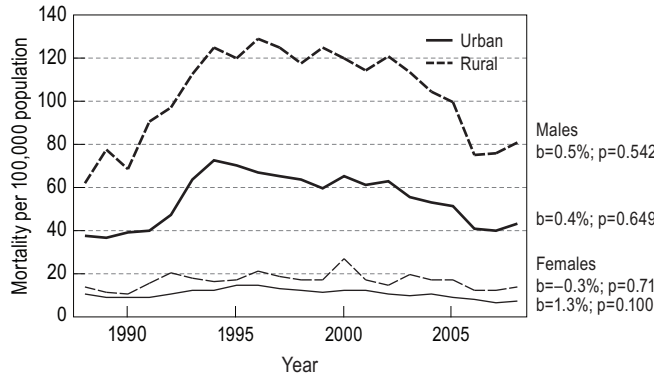

Figure 2.6. Trends in suicide mortality among urban vs. rural males and females (b = average annual change). Source: Lithuanian Department of Statistics.

groups. For females, suicide mortality rates in the 25–34 and 45-and-over age groups were lower in 2008 than in 1988. Across time, the general trend for females was an increase in suicide mortality with age (i.e., older age groups had higher suicide mortality rates). The greatest male–female suicide mortality differences were observed in the able-bodied population (15–64 age group), with the mortality ratio reaching 6–8:1 (male–female).

2.3.3 Rural-Urban Differences in Suicide Mortality

Like the other Baltic States and many other East European countries, there are inequalities between Lithuania's urban and rural populations (Kalėdienė *et al.*, 2006a) (see *Figure 2.6*). From 1988–2008, suicides in rural areas exceeded those in urban areas by 1.6–2.2 among males and 1.2–2.1 among females. The greatest rural-urban suicide mortality differences were observed in 2003, when overall rural suicide rates (i.e., male and female rates combined) were 2.1 times higher than urban rates. The rural-urban gap is expected to widen even further in the future, particularly among males.

2.3.4 Education and Suicide

Based on 1989 and 2001 census data, suicide mortality among males and females with lower educational levels was considerably higher in both years in comparison to the group with a university education. This difference was particularly obvious among males. In 2001, suicide mortality in the lowest educational groups of males was 7.8 times higher than in those with a university education. While suicide mortality in all educational levels exhibited significant statistical increases from 1989

to 2001, the most negative change (i.e., the greatest increase in suicide mortality) occurred among females in the lowest educational group, where mortality increased 3.5-fold.

In addition, suicide rates vary when education and rural-urban status are considered together (Kalėdienė *et al.*, 2004). The greatest differences have been observed among males. In urban males, suicide mortality in the lowest educational group was eight times higher than in the group with a university education in 1989 and more than three times higher in 2001. In rural males, suicide mortality among the least educated did not differ significantly from that of the group with a university education in 1989. However, in 2001, it was more than six times higher among the least educated than among the university educated. For females, educational differences in suicide mortality were not significant either in urban or rural areas. The greatest educational differential in suicide mortality was in rural males.

2.3.5 Marital Status and Suicide

Census data from 1989 and 2001 also reveal significant variation in suicide rates with marital status, especially among men. Among males, the highest rates were observed in widowed men (both years). Among females, widowed and divorced women exhibited the highest rates in 1989 and 2001, respectively. The greatest increases in suicide mortality between 1989 and 2001 occurred among widowed men and women. For both males and females, the lowest rates were observed among married individuals.

2.3.6 Seasonality and Daily Variation in Suicide Mortality

Both male and female suicide mortality rates exhibit seasonal patterns, with the greatest deviations from the daily average per year occurring in winter (greatest decline) and summer (when suicide rates peaked) (Kalėdienė, 2006b). Seasonal variation is statistically significant in males but not females (Kalėdienė, 2006b). Although there is an obvious peak in suicides among both males and females in May, June, and July, the monthly variation is not statistically significant. With respect to daily variation, the highest proportion of suicides occurs on Mondays and in the days immediately following major public holidays (Kalėdienė & Petrauskiene, 2004).

2.3.7 Method of Suicide

In a study of all registered suicides in Lithuania in 1993–2002 (Starkuviene *et al.*, 2006), hanging was the most common method. Of the total completed suicides in the period 1993–1997, 89.4% of males and 77.3% of females chose hanging. Over the period of the study, there was a statistically significant increase in the proportion

of hangings, with the figure reaching 91.7% in males and 82.6% in females in the period 1998–2002. The other predominant methods among males were firearms and explosives and, among females, poisoning with solid or liquid substances or gases. Self-inflicted poisoning was recorded for 10% of all female suicides but only 2% of male suicides. More recent data suggest that the proportion of both male and female suicides completed by hanging increased in 2003–2007 but that hanging is still significantly more common among men than among women.

2.3.8 Religiosity in Lithuania

Following Kalėdienė's presentation, and touching on a theme that would be revisited at length later in the conference, a comment was made about how, despite Lithuania's deep religiosity, particularly in the rural population, other factors like educational level seem to be more important determinants of suicide. The question was raised: Does religiosity serve as a protective factor in Lithuania? Kalėdienė replied that, in her personal opinion (i.e., without any scientific evidence to back up her claim), while a majority of the population would identify as being religious, mostly Catholic, religiosity is not very deep. In her view, Lithuania society is very individualistic.

2.3.9 Suicide Prevention Policy in Lithuania

No in-depth studies have been conducted to assess the reasons for the recent downward trend in Lithuania's suicide mortality rates. Improvements in the mental health care system, development of the Suicide Prevention Program (2003–5), strict alcohol control measures, etc., may have played a role. However, there are no data on the effectiveness of the various national and local suicide prevention projects and programs. Many experts consider the country's Suicide Prevention Program (2003–5) a failure, because the focus of the program was on psychiatric treatment (i.e., mostly for depression), not social prevention (e.g., creation of crisis centers). Social approaches to suicide prevention are often met with resistance from family physicians, decision-makers, and other stakeholders, who hold the dominant biomedical view. Moreover, the success of the program was limited by financial constraints and lack of coordination among the multiple efforts to develop suicide prevention projects. More recently in 2007, the Lithuanian parliament approved a National Mental Health Strategy based on the WHO Mental Health Declaration for Europe 2005.[7] Again, however, most experts consider the program a failure because of financial constraints and its focus on treatment rather than prevention. Arguably, the most successful Lithuanian health policy in general has been the

[7]The WHO Mental Health Declaration for Europe 2005 can be viewed online at http://www.euro.who.int/_data/assets/pdf_file/0009/99720/ed oc06.pdf

Box 2.3. The Need for Evidence-based Assessments of Suicide Prevention Programs.

> Suicide is considered a major public health challenge in Lithuania, requiring complex prevention measures. The government has responded by developing and implementing multiple programs and enacting new legislation aimed at improving mental health, decreasing the prevalence of suicides, preventing bullying, and decreasing alcohol consumption levels. These measures include the Lithuanian Mental Health Program (1998), the State Alcohol Control Program (1999), the Suicide Prevention Program for 2003–2005, and the National Mental Health Strategy 2008–2013. However, it is not clear which of these and the many other programs developed and laws enacted over the past decade, if any, have contributed to the recent downward trend in suicide mortality. No in-depth studies have been conducted to evaluate their effectiveness. Until they are, not just in Lithuania but across Eastern Europe, it will be difficult to know which interventions work and under what circumstances.

State Alcohol Control Program, which was launched in 1998 and has led to a sharp decrease in alcohol consumption and alcohol-related mortality—trends that likely have had implications for alcohol-related suicide mortality in particular, since about 70% of suicides in Lithuania are alcohol related.[8] Lithuania's recent decline in suicide mortality may also result from other non-interventionary processes like emigration and lower unemployment. Regardless of the explanation, the recent decline in suicide is not stable, and the suicide rate remains extremely high. Consequently, there is a great need to mobilize all suicide prevention forces in Lithuania while simultaneously conducting evidence-based assessments of the effectiveness of various prevention programs.

2.4 Suicide Trends in Belarus, 1980–2008[9]

Suicide is the second leading external cause of death in Belarus. Although suicide rates were comparatively high in the country even during the late Soviet period, the alarming rise that has occurred during the post-Soviet period means that Belarus now has one of the highest suicide rates in the world. According to official statistics, the national suicide rate in Belarus increased by 13.2% (from 24.3 to 27.5 per 100,000 population) between 1980 and 2008. The male suicide rate increased by

[8] When asked how this statistic was measured, Kalėdienė replied that it was measured as part of a recent doctoral dissertation and based on blood alcohol concentration (BAC) at the time of death.

[9] This section is based on Y.E. Razvodovsky's presentation at the Tallinn conference. Some of the text has been enhanced with details from Razvodovsky's submitted paper.

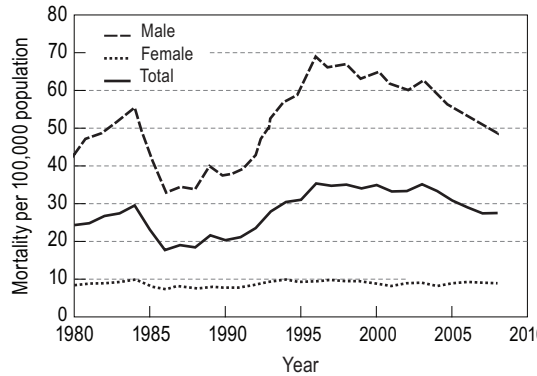

Figure 2.7. Suicide mortality per 100,000 population in Belarus, 1980–2005. Source: Ministry of Statistics and Analysis of Belarus, Annual Reports

13.6% (from 42.7 to 48.5 per 100,000 population) and the female rate, by 9.6% (from 8.3 to 9.1 per 100,000 population) during this period. The sharpest increase was between 1990 and 1995, when rates climbed from 21.3 to 32.3 suicides per 100,000 population, pushing Belarus from 11th to 6th place in the ranking of national suicide rates in the WHO European Region. By 2005, Belarus had risen to 3rd place. However, rates have fluctuated over time, with a sharp drop in the period 1984–1986 and another decline beginning in 1996 (see *Figure 2.7*).

The fluctuations and overall increase in suicide mortality have more or less correlated with societal transformation. Several researchers believe that the decline, at least in part, may have been related to the political and social liberalization that occurred during *perestroika*, which sparked social optimism and new hope (Värnik *et al.*, 1998 and Värnik *et al.*, 2008). The subsequent upturn in the early 1990s corresponded to the dissolution of the Soviet Union and the profound socioeconomic and political changes that occurred during the transition to post-communism. Several scholars have argued that psychosocial distress resulting from the "shock therapy" of economic reform and the sudden collapse of the paternalistic Soviet system was the main determinant of the general suicide mortality crisis that swept across the former Soviet republics in the 1990s (Leon & Shkolnikov, 1998). That early 1990s shock was followed by a period of relative improvement and stability in the middle years of the decade. However, the fact that the number of blood-alcohol-concentration (BAC)-positive suicides in Belarus soared in the 1990s, while the number of BAC-negative suicides remained relatively stable, strongly supports an alcohol-related hypothesis (Razvodovsky, 2009). Likewise, it seems plausible that the sudden decline in the mid-1980s entirely resulted from the anti-alcohol campaign of 1985–1988, which significantly reduced alcohol availability.

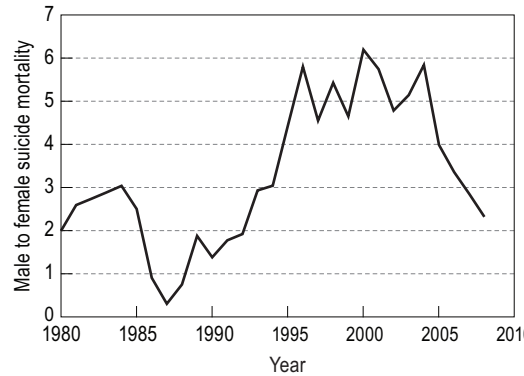

Figure 2.8. Male–female ratios in suicide mortality in Belarus, 1980–2008. Source: Ministry of Statistics and Analysis of Belarus, Annual Reports.

2.4.1 Gender-Related Differences in Suicide Mortality

As elsewhere in Eastern Europe, there is a substantial difference in gender-specific suicide trends in Belarus, with male suicide mortality not only much higher than female suicide mortality but also fluctuating across time to a much greater extent. For instance, male suicide rates were more adversely affected during the post-Soviet transition to a market economy (1991–4), increasing by 62.2%, compared to 24.5% for the female population. It seems plausible that alcohol has played a role in some of these fluctuations, with one study demonstrating a positive correlation between male–female suicide mortality ratios and alcohol consumption per capita (Razvodovsky, 2001). Indeed, suicide mortality dropped more sharply for males (40.5%) than females (23.5%) during Gorbachev's anti-alcohol campaign (1984–6). As a result of fluctuations over time, the male–female ratio has also fluctuated over time (see *Figure 2.8*).

2.4.2 Age-Related Variation in Suicide Mortality

Today, the highest suicide rates in Belarus are among men in the 45–54 age group, a finding that, again, could be related to high rates of alcohol consumption in the working-age male population (Razvodovsky, 2001). Among women, suicide rates rise steadily with age, with female rates hitting a high of 19.9 suicides per 100,000 in the 75-and-over age group. The difference in age pattern between men and women is especially marked among the working-age population. For example, the suicide rate among men aged 45–54 is 8.8 times higher than among women of the same age.

Age-specific suicide rates for males and females yield patterns that differ substantially over time. *Figure 2.9* shows marked increases in suicide rates for all male

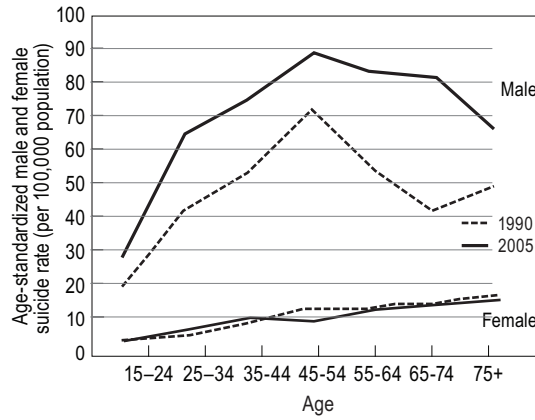

Figure 2.9. Age-standardized male and female suicide rates (per 100,000 population) in Belarus, 1990–2005. Source: Ministry of Statistics and Analysis of Belarus, Annual Report.

age groups from 1990 to 2005, particularly in the 15–24 (+55%), 25–34 (+52.4%), and 65–74 (+91.3%) age groups. For most female age groups, suicide mortality in 2005 was comparable to or even slightly lower than in 1990. For women aged 25–34, however, suicide rates increased by 51.5% during this period.

2.4.3 Rural-Urban Differences in Suicide Mortality

As is true across Eastern Europe, Belarus has witnessed a disproportionate increase in rural suicides over time, leading to growing rural/urban gradients (Kondrichin & Lester, 1998 and Razvodovsky, 2007). From 1990 to 1995, even though suicide rates in both rural and urban areas rose, the increase was slightly greater in urban areas than rural areas, resulting in a small reduction in the rural/urban suicide rate ratio. Between 1995 and 2000, however, the suicide rates in urban and rural regions moved in opposite directions: while the rate decreased slightly in urban regions (-6%), it rose in rural areas (+23%), resulting in a large increase in the rural-urban suicide rate ratio among the total population (from 1.26 to 1.76). By 2005, the ratio had increased even further (2.13), even though suicide rates had fallen in both urban and rural areas (i.e., relative to 2000 levels; in 2005, the suicide rate for the total population in all regions remained well above its initial 1990 level [30.8 in 2005 vs. 22.5 in 1990]). Among men, the largest rural-urban suicide ratios are in the 15–24, 25–34, and 35–44 age groups. Among women, the largest ratio is in the 35–44 age group. Differences in rural-urban suicide rate ratios among the different age groups are smaller for women than for men.

A number of factors have been suggested to explain the higher suicide rates in rural areas of Belarus (Razvodovsky & Stickley, 2009). These include cultural differences with respect to the stigma of mental illness in rural settings and reluctance among some men to seek medical care for conditions such as depression, which they associate with femininity. Another potentially relevant factor is the ongoing depopulation, with those migrating away from rural areas tending to be both younger and female, leading to a population imbalance, a large surplus of single men and elderly in the countryside, and social isolation. It is also possible that against a deteriorating socioeconomic backdrop, the presence of a large number of single men in rural areas has resulted in higher levels of alcohol consumption. While it is probable that alcohol has influenced suicide rates in both urban and rural areas, its impact may have been especially heavy in the latter due to the disappearance of customs and cultural traditions regulating alcohol consumption, the low level of social control, and the absence of drug treatment services and anti-alcohol work in recent years. The role of alcohol as a major contributor to a high rural-urban gradient in suicide rates was highlighted in a recent study demonstrating a close association between suicide and fatal alcohol poisoning rates in both male and female rural Belarus populations (Razvodovsky, 2006).

2.4.4 Spatial Distribution of Suicides

Since the birth of social statistics, from the end of the 19th through the first half of the 20th centuries, the spatial regularity of suicide has been a matter of serious scientific discussion (Douglas, 1967; Durkheim, 1897; Kandrychyn, 2004). Although scholars have considered a range of factors potentially responsible for the phenomenon, including geophysical, climatic, biological, anthropological, pathological, sociocultural, and other factors (Bobak & Gjonça, 1997; Lester, 1997), the multifactorial nature of suicide has been the main methodological barrier to scientifically verifying any single factor as a determinant (Leenaars, 1996 and Westefeld *et al.*, 2000).

Epidemiological analyses have demonstrated noticeable and regular spatial variation in suicide rates in Belarus (Kandrychyn, 2004 and Leenaars, 1996), with the main gradient being an increase from south to north. The four northern administrative territories (*voblasci*) of Vitebsk, Minsk, Hrodna, and Mahiliou have higher suicide rates than the southern territories of Brest and Homel. A similar south-north gradient has been observed among the districts of the Minsk region in the center of the country (Kandrychyn, 2004). Of note, a south-north suicide gradient has also been observed elsewhere in Europe (i.e., in Italy, France, and European Russia) (Lester, 1999). Moreover, the polar points on Belarus' suicide map are the Brest region in the southwest and the Vitebsk region in the northeast; the European gradient has the same southwest-to-northeast polarity (Kandrychyn, 2004).

According to official statistical data for 1990–2005, the suicide rate in Brest increased by 70.1% (from 16.4 to 28.0 per 100,000 population); in Homel, by 107.5% (from 16.1 to 33.4); in Vitebsk, by 65.2% (from 26.7 to 44.1); in Mahiliou, by 56.4% (from 22.0 to 34.4); in Hrodna, by 44.1% (from 23.6 to 340); and in Minsk, by 51.9% (from 23.7 to 36.0). Over the same time period, suicide mortality in Minsk city declined by 19.1% (from 15.7 to 12.7). For the period 1990–2005, mean suicide rates (per 100,000 population) were 24.5 $\pm$ 4.1 in Brest; 27.1 $\pm$ 5.4 in Homel; 42.3 $\pm$ 7.1 in Vitebsk; 33.9 $\pm$ 5.9 in Mahiliou; 32.3 $\pm$ 5.3 in Hrodna; 39.3 $\pm$ 8.9 in Minsk; and 19.9 $\pm$ 4.1 in Minsk city. Thus, for the period 1990–2005, the lowest mean suicide rate was observed in Minsk city and the highest in the Vitebsk region, with the greatest increase in suicide mortality registered in Homel and Brest. While suicide rates in the four northern regions of Belarus were consistently higher over time than in the two southern regions, the increase was higher in the south (88.8% mean increase) than in the north (54.4% mean increase).

The sole exception to this general trend is Minsk city, a discrepancy that may be explained by any number of factors, such as the demographic structure of the capital city, its relatively high income level and economic prosperity, social and cultural characteristics, the availability and efficiency of professional medical care, the level of alcohol-related problems, alcohol use, the accuracy of autopsy findings, etc. The results support the methodological principle that large cities should either be excluded from the ecological study of regional variation or studied separately (i.e., as a group of large cities).

2.4.5 Seasonality of Suicides

The seasonality of suicides is a well-documented phenomenon (Lester 1999). Studies from different countries have demonstrated that suicide rates tend to peak during spring and early summer, with the lowest rates observed in winter (Kalėdienė *et al.*, 2006; Preti *et al.*, 2000; and Razvodovsky, 2006). Both social and physical environmental factors have been suggested as causes of the seasonal pattern in suicide mortality (Lester, 1999 and Preti *et al.*, 2000). The seasonal variation pattern in suicide in Belarus displays similarities with the pattern in other countries: a distinct peak in May and a trough in January, with a range of +40.7% to –43.6%.

2.4.6 Methods of Suicide

The suicide methods that individuals choose vary widely worldwide. In the United States, 60% of suicides are committed with firearms, while in South Asia, about 60% are committed with pesticides (Wasserman *et al.*, 1998). A study of suicide

methods in 16 European countries reported that 54.3% of males and 35.6% of females died by hanging (Värnik *et al.*, 2008). A number of factors may influence an individual's decision regarding method in a suicide (Lester, 1997).

In Belarus, the most common suicide method for both genders is hanging, with strangulation accounting for the majority of suicides among both males (82.7%) and females (59.9%). The next most commonly reported methods are jumping from heights (6.5% for males and 20.5% for females) and self-poisoning with drugs (4.4% for males and 13.8% for females).

2.4.7 Alcohol and Suicide

It is well recognized that both acute and chronic alcohol use are among the major behaviorally modifiable factors associated with suicidal behavior (Mäkinen, 2000 and 2006; Pridemore, 2006; and Razvodovsky, 2007 and 2009). Several studies have reported relatively high proportions of blood-alcohol-concentration (BAC)-positive suicide cases (Razvodovsky, 2010 and Värnik *et al.*, 2006). In particular, a recent study of autopsy reports from the Belarus Bureau of Forensic Medicine concluded that 61% of male suicides and 30.6% of female suicides were BAC positive at the time of death, with an average BAC of 2.2 g/L for males and 2.1 g/L for females (Razvodovsky, 2010). The greatest frequency of BAC-positive cases among men was found in the 30–59 age group (66%) and, among women, in the 19–39 age group (48%). It should be noted that the proportion of suicides in Belarus that are BAC positive is among the highest in the world.

Additional support for a link between alcohol and suicide in Belarus comes from aggregate data. For example, results from a time-series analysis suggest a positive correlation between fatal alcohol poisoning/alcohol-related psychosis morbidity (as a proxy for alcohol consumption) and suicide rates (Razvodovsky, 2007). The results of another study covering the period 1980–2005 show that population-level alcohol consumption has a positive and statistically significant association with suicide rate, with a 1 liter change in per capita consumption associated with a 7.4% increase in the suicide rate among males and a 3.1% increase among females (Razvodovsky, 2009). In yet another study, Razvodovsky (2001) demonstrated a stronger association between alcohol and suicide with the consumption of distilled spirits (vodka) relative to the total level of alcohol consumption. Finally, Razvodovsky (2009) demonstrated that alcohol-related suicides were affected by restrictions on alcohol availability during the anti-alcohol campaign of 1984–1986, with the number of BAC-positive suicide cases dropping by 54.2% and the number of BAC-negative suicides by 7.1%.

Box 2.4. Alcohol and Suicide

Even though Belarus' suicide rate has fallen in recent years, it remains high. The highest rates have been recorded predominantly among men in the 45–54 age group, a finding that could be related to high rates of alcohol consumption in the working male population. The role of alcohol consumption in determining suicidal behavior, particularly among men, was revisited several times over the course of the two-day conference, with some participants identifying it as the single most important risk factor to consider when developing suicide prevention policies and programs.

2.4.8 Suicide Prevention Programs

Today, the prevention of suicide and suicidal behavior is a major public health concern in Belarus. The Action Plan for Suicide Prevention, 2009–2012, calls for public education, improved access to mental health services, crisis intervention, training of health professionals, detection and treatment of depression and related conditions, and restrictions on lethal means (e.g., barbiturates, benzodiazepines).

2.5 Suicide Trends in Russia, 1956–2008[10]

Suicide trends in Russia over the past half century have fluctuated markedly in both the male and female populations, with a gradual increase from 1956 (when rates were 29.6 per 100,000 population among men and 7.5 per 100,000 population among women) to an initial peak in 1984 (71.4 per 100,000 population among men),[11] followed by a steep decline and then another increase to a second peak in 1994 (81.7 per 100,000 population among men and 13.5 per 100,000 among women) (see *Figure 2.10*). The 1994 suicide mortality rate among men was the highest recorded male suicide mortality rate in Russian history. After 1994, rates for both men and women continued to fall, dropping to 46.7 per 100,000 population among men and 8.4 per 100,000 among women in 2008. The fluctuations in the male and female populations over the entire period (1956–2008) have been closely synchronized ($r^2 = 0.97$). Between 1956 and 1984, the male–female ratio in suicide mortality was 5:1; between 1985 and 2008, it was 6:1.

[10] This section is based on A.V. Nemtsov's presentation in Tallinn.

[11] In later discussions, a question was raised about whether widespread "social deprivation" might explain the rising suicide rate. Even though 1956–1984 was a period of positive economic growth in the former Soviet Union, perhaps there was also an increase in economic inequity or social change during that time.

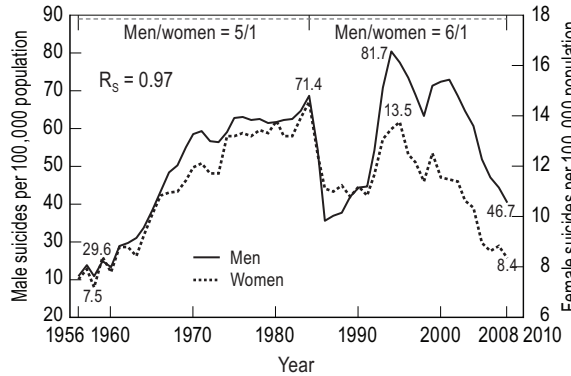

Figure 2.10. Female and male suicide mortality in Russia, 1956–2008. Source: Russian Statistical Offices.

2.5.1 Geographic Variation in Suicide Mortality

Even though the national suicide rate for the male population has been declining in recent years (from 60.0 to 56.9 per 100,000 population between 1989 and 2008, representing a 5.2% decrease), many regions in Russia have in fact experienced substantial growth in suicide mortality. For example, suicide mortality in the Chita Region soared from 72.7 to 147.2 suicides per 100,000 population between 1989 and 2008, representing a 102.5% increase; suicide mortality in the Republic of Sakha soared as well, from 50.3 to 101.0 suicides per 100,000 population over the same time period, representing a 100.8% increase.

There was some discussion following Nemtsov's presentation about whether regions with rising suicide rates have any ethnic minorities. Nemstov replied that, yes, they do, but that ethnicity does not appear to be relevant. Poverty appears to be the more relevant factor.

2.5.2 Suicide by Age

The age distribution of suicide mortality among men in Russia differs from that of other European countries, with a sharp increase in suicide mortality rates between the 10–14 and 20–24 age groups and another sharp increase between the 60–64 and the 75-and-over age groups (see *Figure 2.11*). (By comparison, as previously mentioned, in Belarus, Estonia, and Lithuania, the highest suicide rates among men are in the 45–54 age group.)

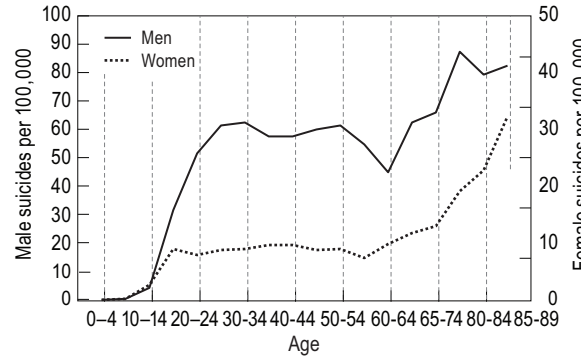

Figure 2.11. Age distribution of suicide mortality in Russia, 2008. Source: Russian Statistical Office.

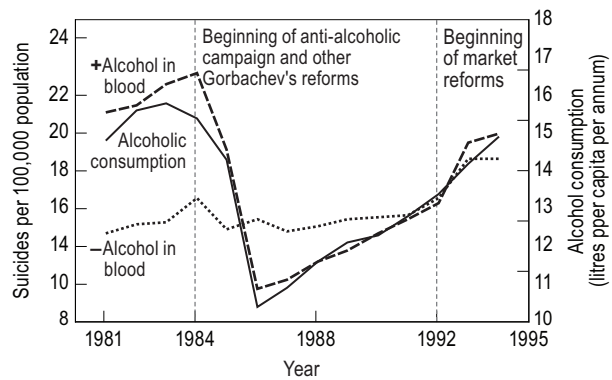

Figure 2.12. Blood alcohol concentration (BAC)-positive suicides vs. BAC-negative suicides in eight regions of Russia, before (1981–1984), during (1985–1990), and after Gorbachev's anti-alcohol campaign. Source: Nemtsov (2003).

2.5.3 Alcohol and Suicide

According to Nemtsov, forensic evidence from multiple regions across Russia indicates that an estimated 30% of the people who complete suicide have alcohol in their blood at the time of death (45% among men, 20% among women), with alcohol-related suicides (i.e., alcohol detected in the blood at the time of death) plummeting during Gorbachev's anti-alcohol campaign in the mid-1980s but gradually creeping up again after the campaign ended (see *Figure 2.12*).

Box 2.5. Geographic Variation in Suicide Mortality

Just as there are distinct geographic patterns in suicide mortality across Europe, with Eastern European countries experiencing dramatically higher suicide rates than most other European countries, there are also some distinctive within-country geographic patterns. For example, Belarus manifests a distinct north-south gradient with the four northern administrative territories (*voblasci*) of Vitebsk, Minsk, Hrodna and Mahiliou having higher suicide rates than the southern territories of Brest and Homel. In Russia, while the country as a whole has recently experienced a decline in suicide mortality, some regions have experienced dramatic growth in suicide mortality. In 2008, the highest rates in Russia were in peripheral, outlying regions (i.e., nine National Autonomous Regions and one region in Siberia). The multi-factorial nature of suicidal behavior makes it difficult to tease apart the underyling cause(s) of such geographic variation. At the workshop, Nemstov attributed geographic variation in Russia to poverty. Pyliagina attributed geographic variation in Ukraine to the rapid economic decline of the mid-1990s and its greater impact on more densely populated, industrial regions.

2.5.4 Suicide Prevention Policy

Russia does not have a suicide prevention policy. The only relevant policies are for depression and alcoholism.

2.6 Suicide Trends in Ukraine, 1988–2010[12]

Since its birth in 1991 as an independent state in the post-Soviet period, Ukraine has ranked among the countries with the highest suicide mortality rates worldwide. The difficult social, economic, and sociodemographic situation in Ukraine during its transformation to an independent state led to an increase in suicide mortality, from 19.0 suicides per 100,000 population in 1988 to 29.2 per 100,000 in 2002. Only in the past five years has this upward trend reversed itself. Interestingly, the unstable political situation in Ukraine over the past five years has not influenced suicide mortality. Nonetheless, between 1991 and 2010, 226,087 persons died by suicide—that is, around 10,000 people per year on average. In 2009, 9,717 people died by suicide, or about 0.5% of the population.

[12]This section summarizes Galyna Pyliagina's presentation, with some of the text enhanced with details from Pyliagina's submitted paper.

2.6.1 Spatial Distribution of Suicide Mortality

Like Belarus, Russia, and other East European countries, Ukraine exhibits significant geographic variation in suicide mortality (see *Figure 2.13*). The highest suicides rates are in the industrial regions and regions with the highest population densities (i.e., the eastern, southern, central, and northern regions of the country). There was a steep rise in suicide mortality in the mid-1990s, when these regions grappled with terrible economic problems and a rapid deterioration in quality of life, with suicide rates in eastern Ukraine climbing to 38.0 per 100,000 population in the late 1990s. The lowest observed suicide rates over time have been in western Ukraine, where rates rose in the 1990s but not significantly. In the capital city of Kiev, suicide rates increased in the early 1990s but fell sharply after 1995 and have risen only slightly again in the past three years. In 2009, rates across Ukraine increased slightly.

Regional differences in suicide rates may reflect regional variations in the nature of the economic problems that Ukraine has been experiencing (Cryzhanovskaya & Pyliagina, 1999 and Pyliagina & Vinnik, 2007). For example, the industrialized areas of the eastern, northern, central, and southern regions of Ukraine experienced a rapid disintegration of well-organized economic processes.

In addition, western Ukraine is less populated than the eastern region of the country; increasing population density has been positively correlated with increasing suicide rates (Wasserman, 2001; Pyliagina & Vinnik, 2007; and Wasserman & Wasserman, 2009). Plus, the western Ukraine region has experienced less environmental damage in the country; environmental problems in the East, as well as in Chernobyl, have been associated with higher stress and morbidity and, as such, may increase suicidal tendencies (Cryzhanovskaya & Pyliagina, 1999).

Like the rest of the country, Kiev's rising suicide mortality in the early 1990s was a reflection of the economic troubles of the time. The decline observed in the period 1996–7 likely resulted from economic recovery. The city's generally low rates over time are likely the result of economic development, a higher standard of living than elsewhere, and the availability of medical and psychological care (Pyliagina & Vinnik, 2007).

Finally, the increase in suicide rates observed in all regions except Kiev between 2008 and 2009 may be a reflection of the current economic crisis. Interestingly, political instability does not seem to have had a significant influence on suicide mortality in Ukraine. Suicide mortality fell dramatically during the "Orange Revolution" of 2004–5, with little change over the past five years despite numerous parliamentary elections.

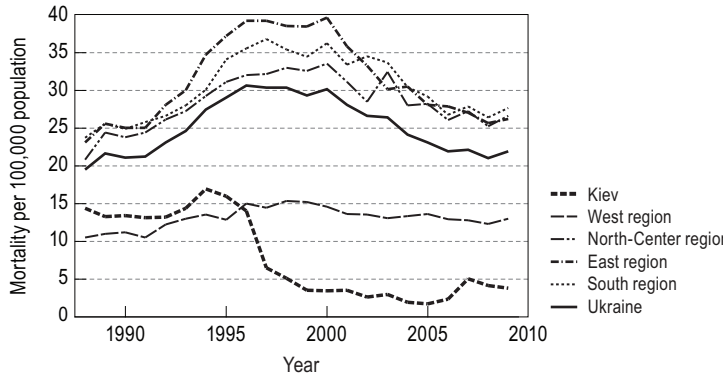

Figure 2.13. Suicide mortality (per 100,000 population) in six main geographic areas of Ukraine, 1988–2009. Source: Pyliagina & Vinnik, 2007.

2.6.2 Gender Variation in Suicide Mortality

As elsewhere across Eastern Europe, there has been a substantial difference in male and female suicide rates in Ukraine over the past two decades, especially in the mid-1990s. Between 1995 and 2009, male suicide rates were 5.5 times higher than female rates on average. Since the mid-1990s, male suicide rates have exceeded or approached 40 per 100,000. Female rates have hovered around 10 per 100,000.

Pyliagina speculated that the difference between male and female suicide mortality patterns might be explained by sociobiological factors such as the predominance of maladjustment in men during difficult life events vs. the predominance of patience and endurance in women. During the socioeconomic disaster of the 1990s, men may have had a harder time with unemployment and the lack of financial means to support their families. Another factor potentially contributing to excess male suicide mortality is widespread alcohol use, including the use of "handmade" (i.e., "homebrew") alcohol (Razvodovsky, 2004). In Pyliagina's view, alcohol dependence is often connected with depression or other psychological problems that generally do not receive enough attention from specialists, yet are often the underlying cause of impulsive suicidal acts, especially when the individual experiencing the problem(s) is intoxicated. Finally, men tend to choose the most lethal suicide methods (hanging, jumping, or deep cutting) (Cryzhanovskaya & Pyliagina, 1999), whereas women tend to choose sublethal methods, with a greater likelihood of surviving (e.g., poisoning by medicine) (Pyliagina & Vinnik, 2007).

2.6.3 Rural-Urban Differences in Suicide Mortality

Like many other countries across Eastern Europe, Ukraine has witnessed a large and growing difference between rural and urban suicide rates over the past 20 years.

From 1991 to 2009, the average rural-urban suicide mortality ratio was 1.38:1. From 1994 to 2005, rates in rural areas exceeded 30 per 100,000 population every year. During that same period, the highest rate observed in the urban population was 28.0 in 1996. Pyliagina speculated that rural-urban variation could result from the fact that urban populations typically enjoy a better quality of life, especially in large cities, because of better financial and other opportunities, greater comfort, and the availability of medical and psychological care; or, it could be associated with widespread alcohol (and drug) abuse in rural areas, combined with the difficult rural lifestyle of hard physical labor, high unemployment, and insufficient medical care (Razvodovsky, 2004 and Pyliagina & Vinnik, 2007).

2.6.4 Age Variation in Suicide Mortality

The age distribution of suicide mortality in Ukraine reveals high suicide rates among able-bodied adults (i.e., aged 25–64), a finding that is likely related to the economic turmoil of the second half of the 1990s and the ensuing hardships. After the turmoil ended in 2000, the differences among the adult age groups began to narrow. After 2005, suicide rates in the 18–59 age group stabilized (Myagkov *et al.*, 2003; Pyliagina & Vinnik, 2007). Although suicide rates among children (0–14 years) and adolescents (15–24 years) have been relatively steady over time, a total of 7,355 children and adolescents died by suicide between 1990 and 2009.

2.6.5 Suicide Prevention in Ukraine

Pyliagina commented on the dearth of funding for suicide prevention and the lack of specialized care for suicide prevention in the health system—as well as the absence of suicidology listed as a profession—as possible explanations for why self-destructive behaviors, including both completed and attempted suicides, persist. Nationwide, while all psychiatrists treat suicidents, there are only about 50 professionals who specialize in suicide research. Ukraine is currently developing a National Suicide Prevention Service.

2.7 Suicide Trends in Hungary, 1920–2007[13]

Suicide trends in Hungary are very different from those of many of the other countries profiled at the Tallinn conference, with an impressive 40% decrease in suicide

[13]This section summarizes Katalin Kovács' presentation in Tallinn. The text has been enhanced with details from Kovács' submitted paper. The suicide mortality data presented here are based on the death registry system of the Hungarian Statistical Office. Suicide cases were identified by ICD-10 codes X60–X84 and, for the years prior to 1996, ICD-9 950–959. Age-specific rates calculated by the author might differ from the officially published ones since they applied population figures for mid-census years prepared in the Demographic Research Institute, Budapest.

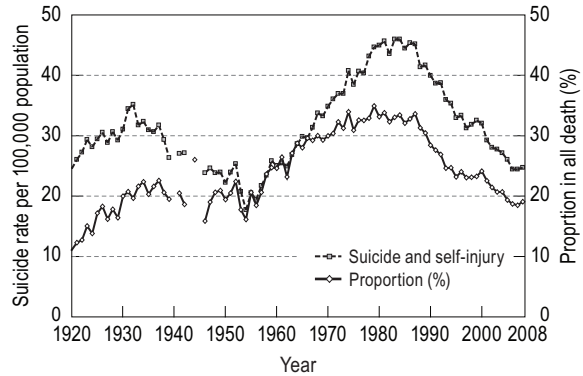

Figure 2.14. Historical trends in suicide rates and suicide proportion of total mortality in Hungary, 1920–2007. Source: Hungarian Central Statistical Office: Demographic Yearbook, 2008, Historical Time Series, Budapest, Hungary.

mortality over the past 30 years (see *Figure 2.14*). Suicide mortality peaked in 1984 (46.2 suicides per 100,000 population), reaching a new high for the 20th century. Despite the recent decline and the fact that Hungary's suicide rate has been markedly lower than the highest European rates over the past decade, suicide mortality remains high at 24.1 suicides per 100,000 population in 2006. Hungarians still consider themselves a suicidal nation.

2.7.1 Gender Differences in Suicide Mortality

Both male and female suicide mortality rates have been moving downward for the past 30 years in Hungary. Among men, after a period of fluctuation between 1980 and 1987 (i.e., around 62–66 suicides per 100,000 population), the suicide rate fell sharply in 1988 and then continued to decline, but less rapidly, reaching 39 per 100,000 population by 2006 (i.e., 57% of the 1984 high). Among women, rates fluctuated between 23 and 26 suicides per 100,000 population in the period 1980–1988, peaking at 28.7 per 100,000 in 1981. The downward trend in suicide among women has been more pronounced, with 2005–2006 rates hovering around 11 per 100,000 population, representing a 60% decrease over the 1981 high. Because of the greater reduction of suicide among women, male excess in suicide is growing. The 2005–2006 rates for women were around 11 per 100,000 population, representing a 60% decrease over the 1984 high.

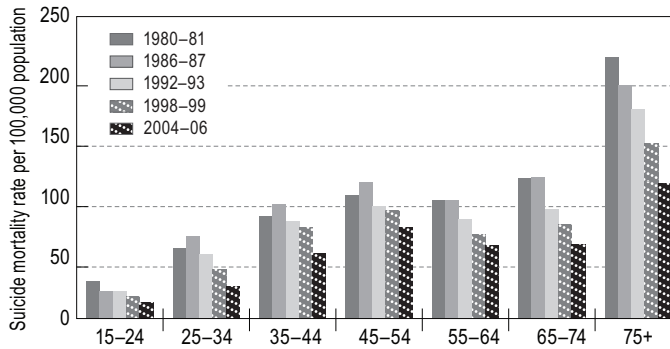

Figure 2.15. Age-specific male suicide mortality rates (per 100,000 population) for selected periods, 1980–2008, in Hungary. Source: Calculated by the author based on data from the Hungarian Central Statistical Office.

2.7.2 Age-Related Variation in Suicide Mortality

Both female and male suicide rates in Hungary tend to increase with age but not in a linear fashion (see *Figures 2.15* and *2.16*). Among men, the 15–24 age group tends to have the lowest rate; the 25–34 age group has a somewhat higher rate; and the rates for the 35–44, 45–54, and 55–64 age groups are higher still but distinctly lower than those of the oldest age groups. This pattern has been more or less consistent over time, even as the rates among the different age groups have fallen to varying degrees. In 2006, the suicide rate for the 15–24 age group was 44–45% of what it had been in 1980; rates for the oldest age groups were 50–55% of what they had been in 1980. The reduction was less pronounced among the middle aged, with 2006 rates for the 35–44 and 55–64 age groups being 61–63% of what they had been in 1980 and the 2006 rate for the 45–54 age group 73% of what it had been in 1980.

The trends for women are similar, with all age groups except the 45–54-year age group exhibiting a significant reduction in suicide rates over time. In 2006, rates for most age groups were 30–35% of their 1980 value; for the 45–54 age group, they were 50% of their 1980 value. Although the greatest positive change (i.e., decrease) occurred in the two oldest age groups, an "age gradient" in suicide was still present in 2006, represented by a 7-fold higher suicide rate for people aged 75 and over compared to the 15–24 age group.

2.7.3 Spatial Distribution of Suicide Mortality

Historically, the highest suicide mortality rates have been observed in the southeastern counties of Bács-Kiskun, Békés, Csongrád, and Hajdú-Bihar and the lowest in the northwestern and western counties of Győr-Sopron, Vas, and Zala, with the

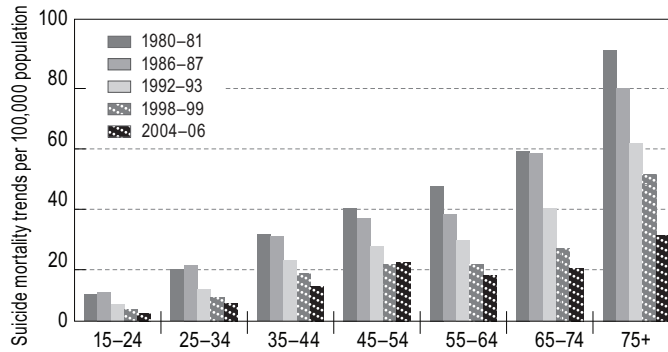

Figure 2.16. Age-specific female suicide mortality trends (per 100,000 population) for selected periods, 1980–2008, in Hungary. Source: Calculated by the author based on data from the Hungarian Central Statistical Office.

highest rates 3–4-fold greater than the lowest. It is unclear why. Kovács stated that the most likely explanation for this historic pattern is variation in cultural norms around self-destruction.

The only observable changes in geographic variation over the past 30 years have been in the capital city of Budapest and the surrounding county of Pest, where suicide rates decreased from 1980–2 to 2004–6; and in the county of Borsod-Abaúj-Zemplén (BAZ), where suicide rates increased. Since 1989, the relative position of BAZ has shifted remarkably, moving from a group of counties with moderate suicide rates into one with high suicide rates. BAZ is the poorest county in Hungary and has experienced high unemployment since the 1990s, when the country's most important industrial sites, which were located there, were shut down. Budapest, on the other hand, is the most prosperous "county" in Hungary.

2.7.4 Methods of Suicide

The predominant way of committing suicide in Hungary is the same today as it was 40 years ago: hanging (see *Figures 2.17* and *2.18*). In fact, the proportion of suicides by hanging has increased over time, exceeding 60% by the end of the first decade of the 21st century. Drugs and other chemicals (including pesticides) are another common method. Although there is no detailed information on the use of drugs and other chemicals for the period prior to 1996[14] (when ICD-9 coding was used), from 1996 onward, pesticides were used in only 2–3% of all cases and other chemicals almost never. Thus, the majority of "drugs and other chemicals" cases must involve medicines (not chemicals). Interestingly, the proportion of suicide

[14]For this comparison, only three-digit ICD-9 and ICD-10 codes were used. A more detailed and accurate examination would have been possible using five-digit codes in both cases.

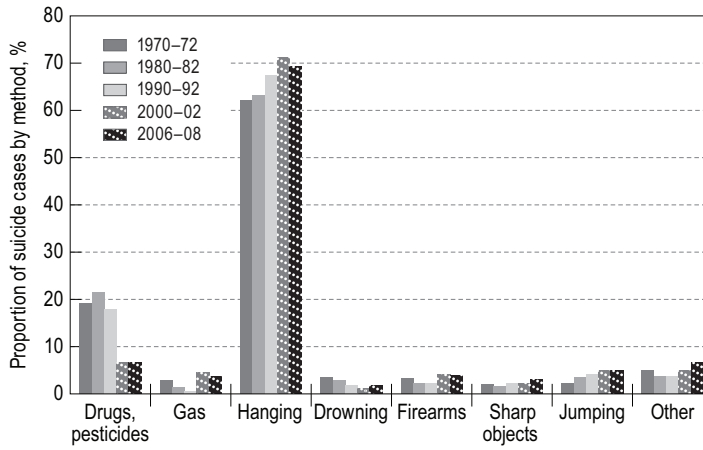

Figure 2.17. Major ways of committing suicide among Hungarian men, 1970–2008. Source: calculated by the author based on data from the Demographic Yearbook of Hungary, 1970–2008.

cases involving the use of drugs and other chemicals has decreased over the past decade, from 25% (from 1970 through the 1990s) to only about 10% since 2000. A popular, but still not satisfactorily supported, explanation for this downward trend is that suicides by medicine have become more preventable with improvements in technology (e.g., mobile phones, emergency services, advanced medical technologies). This downward trend has been offset by growth in the relative importance of other methods (e.g., gas).

Although male and female method patterns are similar, some differences are worth mentioning. While hanging is the now the most common way of committing suicide for both men and women, this has not always been the case. Only in the past decade did hanging surpass poisoning with drugs as the most common method of suicide among women. Also, drowning and jumping are more common among women than men. Firearms, on the other hand, are rarely used by women, a situation that is common in countries with strict gun control; the use of sharp objects to commit suicide is also rare among women.

2.7.5 Religious Variation in Hungary

During the discussion following her presentation, Kovács explained that data from the 1930s point to a religious pattern to suicide mortality in Hungary, with Calvinists (one of two types of Protestants in Hungary) exhibiting the highest rates and Catholics much lower rates. Regions with higher proportions of Protestants have higher suicide rates.

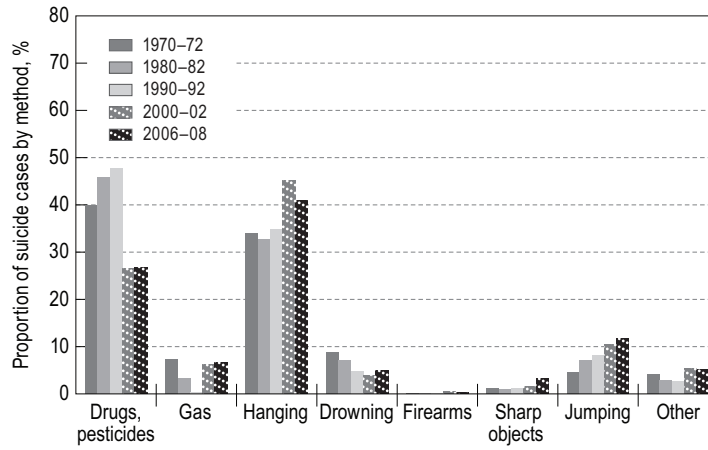

Figure 2.18. Major ways of committing suicide among Hungarian women, 1970–2008. Source: Calculated by the author based on data from the Demographic Yearbook of Hungary, 1970–2008.

2.8 Suicide Trends in Poland, 1979–2008[15]

Poland lies in the mid-range of European suicide rates, with a low of 9.0 suicides per 100,000 population to a high of 15.9 per 100,000 in the period 1979–2008 (mean of 13.92 per 100,000 population). From 2000 to 2008, the mean suicide mortality rate was slightly higher, at 15.23.

There were two significant changes in the number and rate of suicides between 1979 and 2008. The first was in 1980–1, when Solidarity, the great social movement and first independent (i.e., nongovernmental) trade union in a Soviet country, was founded. Suicide rates plummeted nearly 30% between 1980 and 1981. The Solidarity period of freedom and immense social aspiration ended on December 13, 1981, when martial law was declared. The second significant change in suicide mortality in Poland occurred when a new pluralistic and democratic market economy system was established on January 1, 1990, and unemployment reared its head in Poland for the first time since WWII. By late 1990, over 1 million men and women were unemployed (6% of the population), and by 1992, the unemployment rate was 15%. Suicide rates climbed 24% between 1989 and 1992. In 1989, they were about 13% lower than in 1990, eventually stabilizing at 14.4–15.1 per 100,000 population in the period 1993–1999; they began rising again, however, in 2000 (by

[15]This section summarizes information presented at the Tallinn conference by Włodzimierz A. Brodniak and also includes text from Brodniak's submitted paper, which was co-authored by Brunon Holyst and Joanna Stańczak.

another 5.3%), stabilizing once more at 16–18% and reaching a peak in 2004–5 (15.8–15.9 per 100,000 population).

Another key moment in Poland's transformation was its entry into the European Union in 2004. Between 2004 and 2007, after it became a full-fledged member of the EU, more than 1.5 million young and middle-aged Polish citizens—most of them highly educated—emigrated, largely to the United Kingdom, Ireland, and Scandinavia, in search of employment. Suicide rates in Poland dropped 18–20% to 9.8% (in the economically active age group) as a result of the neutralizing effect of mass emigration on unemployment.

2.8.1 Gender Variation in Suicide Rates

Like all the other East European countries, there is a large discrepancy between female and male suicide rates in Poland, with roughly 5,000 male suicides (about 23 per 100,000 population) and fewer than 1,000 female suicides (about 4 per 100,000) per year.

2.8.2 Rural-Urban Variation in Suicide Rates

Prior to 1978, suicide rates in towns and cities were higher than in rural villages, although the difference steadily narrowed between 1960 and 1978. In 1979, the proportions reversed, with the rural suicide rate (13.5 per 100,000 population) surpassing the urban suicide rate (12.3 per 100,000). Between 1979 and 2008, suicide rates were higher in rural villages than in towns and cities, with the disproportion between rural and urban suicide rates widening to nearly 44% in 2008 (i.e., the rural suicide rate of 18.3 per 100,000 population was 44% higher than the urban suicide rate of 12.7 per 100,000).

Five socioeconomic determinants have been suggested to explain Poland's higher rural suicide rate:

1. Higher unemployment, including latent unemployment, and hence, greater poverty.

2. Lower average educational level, and hence, fewer opportunities in the labor market.

3. Village-to-town migration of the most active, mobile, and gifted young rural population.

4. Fewer prospects and inferior life opportunities in villages, including those related to starting a family (e.g., unequal male–female ratio, general aging of the village population).

Table 2.1. Poland: Suicide by provinces (voivodeships) in 2004

	Total number	Rate per 100,000 population
Polska	6,071	15.9
Dolnośląskie	577	20.0
Kujawsko-pomorskie	327	15.9
Lubelskie	309	14.2
Lubuskie	184	18.4
Lódzkie	433	16.9
Małopolskie	490	15.0
Mazowieckie	807	15.7
Opolskie	155	14.9
Podkarpackie	307	14.7
Podlaskie	170	14.2
Pomorskie	355	16.2
Śląskie	703	15.0
Świętokrzyskie	174	13.6
Warmińsko-mazurskie	246	17.1
Wielkopolskie	526	15.7
Zachodniopomorskie	308	18.2

Source: The Central Statistical Office – death certificates

5. Less access to health care, especially mental health care, and to social welfare institutions (i.e., less access to physicians, including psychiatrists, and psychologists and social workers).

2.8.3 Geographic Variation in Suicide Mortality

Like most other East European countries, Poland's suicide trends follow a distinctive geographic pattern (see *Table 2.1*). The six provinces (dolnośląskie [Lower Silesia], lubuskie [Lubuskie], łódzkie [Lodz], pomorskie [Pomerania], warminsko-mazurskie [Warmia and Mazury] and zachodniopomorskie [Western Pomerania]), where suicide rates are more or less elevated compared to the national average are, first, the provinces with the highest unemployment rates in Poland and, second, the provinces (with the exception of Lodz) that were integrated into the Polish state by force in 1945 through the Potsdam Treaty as compensation for the Eastern Territories of Poland (Vilnius, Lvov, Grodno) integrated into the Soviet Union and now the independent states of Lithuania, Belarus, and Ukraine. Nearly 100% of the populations of these provinces migrated from Eastern and Central Poland and settled there in 1945. The social integration of these culturally diverse populations is ongoing and may account for the higher suicide rates in these territories, as well as the higher (and statistically documented) rates of substance abuse, family violence, and crime.

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3

Gender, Age, and Rurality/Urbanity Patterns in Suicidal Behavior

Designing and implementing effective suicide prevention programs requires knowing where and how to intervene, which in turn requires knowing whom to target. As demonstrated in the previous chapter, suicidologists have identified distinctive gender, age, and rurality/urbanity patterns in suicidal behavior. As Kristian Wahlbeck stated in Tallinn, suicide in Eastern Europe is a "gender health issue," with men especially vulnerable to suicidal behavior. As elaborated on in the previous chapter, suicide is also an age issue, with the highest proportion of suicide mortalities typically (but not always) occurring among older middle-aged adults. Suicide mortality in Eastern Europe is also a "rural health issue," with a growing proportion of suicides occurring in rural populations. This Chapter examines East European regional gender-, age-, and rurality-related patterns in suicide mortality.

3.1 Gender, Age, and Suicide[1]

Male and female suicide mortality rates are highly variable among European countries, with higher male–female ratios across Eastern Europe (see *Figure 3.1*). At the low end of the scale, male–female ratios in the West European countries of Netherlands, Norway, Sweden, Denmark, Belgium, and France range from 2.2 to 3.0 (countries are listed in ascending order, with Netherlands having the lowest suicide ratio in Europe; data are obtained from WHO Mortality Database, averaging the last 5 years available). At the high end of the scale, the same ratios range from 5.4–5.6 in Romania, Latvia, and Estonia, to 6.0–7.0 in Lithuania, Poland, Slovakia, Ukraine, Russia, and Belarus (again, countries are listed in ascending order, with Belarus having the highest male–female suicide ratio of all European countries).

Not only is the male–female suicide mortality ratio geographically variable, but the overall ratio among all former Soviet states has changed over time, with female mortality rates remaining relatively constant between 1970 and 2005 but male rates fluctuating (see *Figure 3.2*). From the mid-1980s through 2005, male suicide rates in the former Soviet states were characterized by an an S-shaped pattern, with suicide rates falling between 1985 and 1988, rising between 1988 and 1994, and then falling again after 1994.

[1]This information in this section is from Airi Värnik's presentation at the Tallinn conference.

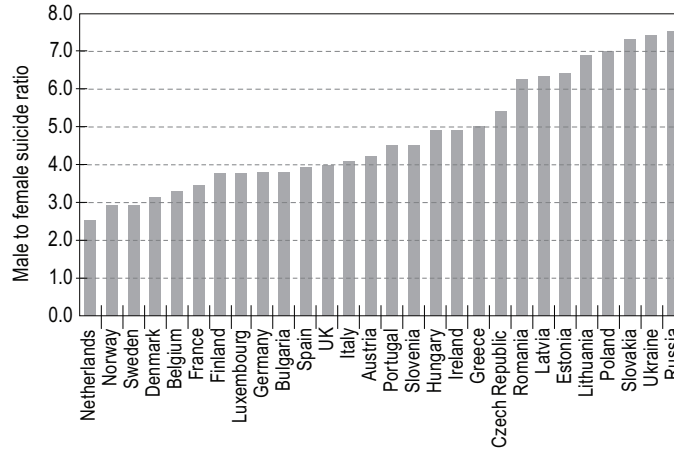

Figure 3.1. Male–female suicide rates in select European countries, averaged over last five years available; 1993–1997 (Belgium); 1997–2001 (Denmark); 1998–2002 (Italy); 2000–20004 (Netherlands, Sweden, France, Germany, Bulgaria, Portugal); 2001–2005 (Norway, Finland, Luxembourg, Spain, UK, Hungary, Ireland, Czech Republic, Estonia, Lithuania, Poland, Slovakia, Russia, Belarus); 2002–2006 (Austria, Slovenia, Greece, Romania, Latvia, Ukraine). Source: Värnik *et al.*, 2011.

Echoing interpretations provided by other speakers, Värnik observed that the trend coincides with changes in the political climate. In 1985–1988, the initial years of *perestroika*, not only was a major anti-alcohol policy introduced, but the changes initiated by Gorbachev led to great aspirations of freedom. This was followed by a period of adaptation to shock and the challenge of coping with the social fallout from the dissolution of the Soviet Union in 1991, which included the lack of restrictions on alcohol availability, high unemployment (e.g., 12–14% in the Baltic states), housing problems resulting from an intensive restitution policy, the loss of (Communist) ideals for migrants from the former USSR, the need for a new educational system, and the challenges posed by the transition from collectivistic to individualistic behavior. In 1994, the socioeconomic situation stabilized. In contrast, the trend in male suicide rates over time for the 15 "old" European Union countries—Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom)—was flat, rather than S-shaped (see *Figure 3.3*).

3.1.1 Age-Related Suicide Trends in Men vs. Women

When suicide mortality among males is examined as a function of age, the S-shaped curve among the Baltic and Slavic former Soviet states is most pronounced in older

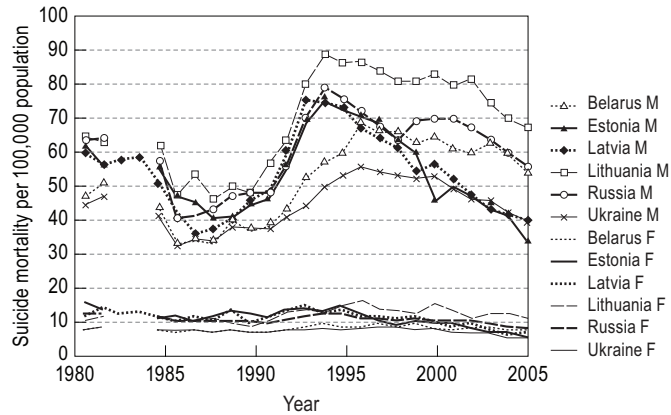

Figure 3.2. Male and female suicide rates (per 100,000 population) in the Baltic and Slavic states, 1981–2005. Source: WHO.

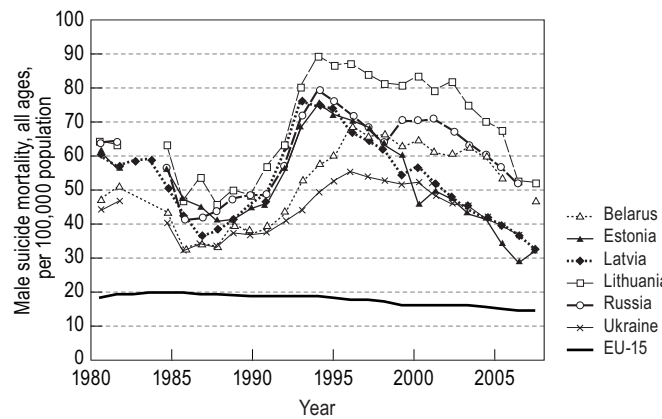

Figure 3.3. A comparison of male suicide rates (all ages), 1981–2007, between the Baltic and Slavic states vs. the EU-15 states. Source: WHO.

middle-aged men (i.e., men aged 45–59). Likewise, the noticeable difference between the S-shaped pattern for male suicide mortality in the former Soviet states and the constancy of suicide rates among "Old European" countries also becomes most pronounced in the 45–59 age group. Female suicide mortality rates in the Baltic and Slavic states do not exhibit the same S-shaped pattern, nor are they dramatically different from those of "Old Europe," except in the 75-and-over age group, in which women in the former Baltic and Slavic countries have higher suicide rates than similarly aged women in "Old Europe."

3.1.2 Why Are Men So Vulnerable?

Värnik posed the questions: Why are men so vulnerable, and what are the implications of male vulnerability for suicide prevention? Clearly, being male is a substantial risk factor for suicide mortality, while being female is a protective factor. In her view, while there is some clear geographic variation, with large differences in the male–female suicide mortality ratio among countries (i.e., with the largest ratios concentrated in the former Baltic and Slavic republics, as well as Poland and Slovakia, and the smallest ratios in the Nordic and Benelux countries, as well as France), it is difficult to believe that gender-related suicide trends can be explained by geography. It is likewise difficult to believe that gender-related suicide mortality can be explained purely by biology.

Could there be social or cultural factors, such as different coping styles and responsibilities, at play? Värnik observed that the economic and social turmoil associated with the transition to a market economy may have exerted more pressure on men than women, particularly older middle-aged men whose adaptive capacity may not have been as high as that of younger men because of expectations of those born prior to the transition to a market economy (i.e., they were prepared to live to the end of their lives on the capital that they already had). In the discussion following Värnik's presentations, conference participants speculated that older middle-aged working men had been more integrated into the Communist economic and political system than women, and men had received very specialized training under Communist rule and therefore were not as well-equipped as women to seize opportunities in the new lifestyle and market economy.

Another possibility is that family support and religiosity may serve as protective factors against male suicide. Värnik mentioned data from the central Asian states of the former USSR (Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan, and Tajikistan) showing an inverse association between male suicide rates and the percentage of natives in the population. That is, where the proportion of native population is higher, suicide rates are lower, presumably because the large multigenerational families and strong religious practices among native peoples confer protection against suicide.

As other conference participants emphasized in their country profiles (see Chapter 2), there is an even greater body of evidence, said Värnik, suggesting that alcohol consumption may have something to do with the increased risk of suicide among men. For example, 1984–6 data on suicide and alcohol consumption in the Slavic and Baltic countries show a strong association between alcohol consumption (measured as liters per capita) and suicide rates, with high alcohol consumption being correlated with higher suicide mortality. In a study on blood alcohol concentration (BAC) at the time of suicide in 5,054 suicide cases in Estonia before (1981–84), during (1986–88), and after (1989–92) a major Soviet anti-alcohol

campaign, Värnik *et al.* (2007) found that BAC-positive suicides decreased by 39% for males and 41% for females during the campaign. When the campaign ended, suicide rates increased.

3.2 Rural-Urban Variation in Suicide Rates[2]

Many East European countries experienced increasing rates of rural suicide, both in absolute terms and in comparison with urban suicide, during the second half of the 20th century (Gailiene *et al.*, 1995; Lasiy, 2004; Phillips *et al.*, 2002; Razvodovsky & Stickley, 2009; Tondo, 2000; Värnik, 1997; Wasserman *et al.*, 2008; Yur'yeva, 2006). Unfortunately, this problem has attracted insufficient attention. An analysis of statistical data from different countries has revealed a shortage of available information in this field, complicating and sometimes making impossible a comparative analysis of urban and rural suicide rates. The European Mortality Database of the World Health Organization (WHO) does not provide separate suicide mortality data for urban and rural localities (WHO, 2010), and national statistical databases and reviews do not provide urban and rural distributions of suicide rates (if available) for different age groups. A review of the relevant literature has also identified few studies focused on the rural-urban distribution of suicide rates. The majority of available studies mention rural-urban suicide patterns in a country-level context but do not provide regional analysis of this problem (Chuprikov & Pyliagina, 2001; Gailiene *et al.*,1995; Gilinskiy & Rumyantseva, 2004; Razvodovsky & Stickley, 2009; Värnik, 1997). Yur'yeva used data from the National Statistical Offices of Belarus, Estonia, Latvia, Lithuania, Moldova, Russia, and Ukraine, and from the literature and professional contacts, to analyze rural vs. urban suicide mortality rates in selected countries, taking both gender and age into consideration.

3.2.1 Historical Dynamics of Suicide in Rural and Urban Localities

Analysis of the historical dynamics of the rural-urban suicide distribution reveals a predominance of urban suicides in the first part of 20th century (see *Figure 3.4*). The Gernet (1929) study in the early USSR (1925–1926) reported a four-fold higher suicide mortality rate of urban males as compared to rural males (28.2 per 100,000 population in urban localities vs. 7.3 per 100,000 in rural localities) and a five-fold higher suicide mortality rate of urban females as compared to rural females (12.6 per 100,000 population in urban localities vs. 2.5 per 100,000 in rural localities). The specifics of the age distribution at that time differed markedly from Durkheim's classic pattern, which predicts higher suicide mortality in the elderly population

[2]This section is based largely on Lyudmyla Yur'yeva's presentation and the ensuing discussion. The text is enhanced with details from Yur'yeva's submitted paper.

compared to other age groups (Durkheim, 1897/1951). During the 1920s, the highest rates of suicide mortality among urban and rural males were reported in the 20–24 age group. The peak of suicide mortality among both urban and rural females occurred even earlier (ages 18–19), with suicide mortality rates among the urban female population steadily rising until the age of 18–19 and then gradually falling, with four-folder higher suicide mortality rates of rural females aged 18–19 as compared to females aged 60 and over.

During the period 1927–1965, studies of suicide mortality in the USSR were very limited, and access to data was closed to the general public (Gilinskiy & Rumyantseva, 2004). There is some evidence to suggest that during those years the National Statistical Office of the USSR recorded only urban suicides and that suicide mortality data in rural areas were not collected until 1956 (Bogoyavlenskiy, 2001). Bogoyavlenskiy (2001) mentions that urban suicide mortality rates gradually rose in the 1930s, peaking in 1937 and then again in 1947, but plummeted during World War II (1941–1945). Urban suicide rates in Lithuania during the 1940s were 4–5 times higher than rural rates (Gailiene *et al.*, 1995).

By the 1960s, urban and rural suicide rates in the European part of the USSR were comparable. Then, rural suicide rates jumped (Gailiene *et al.*, 1995; Lasiy, 2004 Värnik, 1997). In 1986, rural suicide rates in Russia exceeded urban rates by around 30% (21.2 suicide deaths per 100,000 population in urban localities; 27.5 per 100,000 population in rural localities). During 1994–1996, rural suicide rates exceeded 50 per 100,000 population vs. 35.4–37.9 in urban populations (Smidovich, 1990). Rural suicide rates in Ukraine reached 34.1 per 100,000 population in 1998, compared to 26.6 per 100,000 in urban localities (i.e., the rural-urban ratio was 1.28) (Ipatov, 2000). A similar pattern was reported in Latvia in the late 1990s (i.e., the rural-urban suicide rate ratio was 1.4) (Rancans *et al.*, 2001). Rural suicide rates in Belarus increased by 74% between 1985 and 2002, compared to 37% for urban suicide rates over the same period; by 2002, the rural-urban suicide ratio was reported as 2:1 (Ministry of Statistics and Analysis of the Republic of Belarus, 2003).

Concerning gender differences, since 1926, suicide rates have risen 12-fold among rural males and almost 6-fold among rural females. Notably, while suicide rates among urban males have steadily risen, rates among urban females have remained nearly stable over the period.

3.2.2 Urban and Rural Suicide Mortality in the Former USSR (1986)

At the beginning of *perestroika*, rural suicide rates in the USSR were slightly higher than urban rates, with a rural-urban ratio of 1.05 (19.4 per 100,000 people in rural populations, compared to 1.84 per 100,000 people in urban populations). At the same time, there were marked differences between republics, with the highest rates

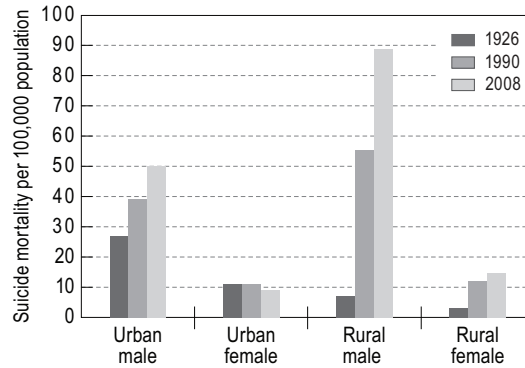

Figure 3.4. Historical urban and rural suicide rates (per 100,000 population) across Russia. Sources: Gernet (1929) and WHO (2010).

in both rural and urban areas reported in Estonia (rural, 35.6; urban, 24.5) and the lowest in Armenia (rural, 1.6; urban, 1.9). The rural-urban ratio in Estonia was 1.45, compared to 0.84 in Armenia.

Geographic variation in rural-urban ratios was so pronounced at that time that Smidovich (1990) proposed dividing the republics of the USSR into two groups: (1) countries with a "European" suicide distribution: republics with higher rural suicide rates, including the eight republics of the European part of the USSR (Estonia, Latvia, Lithuania, Russia, Moldova, Ukraine, Belarus, and Georgia); and (2) countries with an "Asian" suicide distribution: republics with higher urban suicide rates (i.e., twice as high, on average), including the republics of Central Asia, Transcaucasia (except Georgia), and Kazakhstan. Factors potentially contributing to a European suicide distribution include difficult social and economic situations in rural areas, rapid population shifts from rural to urban localities (particularly among the young), and stagnation of the rural way of life as a consequence of urbanization. Factors potentially contributing to an Asian suicide distribution include a significantly higher proportion of children in rural localities (since suicide rates among younger age groups are lower, this factor probably influences total rates); high respect for religion and traditions in rural populations; the existence of large families with many children and greater interpersonal support during times of crisis in rural localities; and the consequences of rapid urbanization in traditionally nonindustrialized regions (e.g., the marginalization that occurs with the destruction of the traditional family lifestyle).

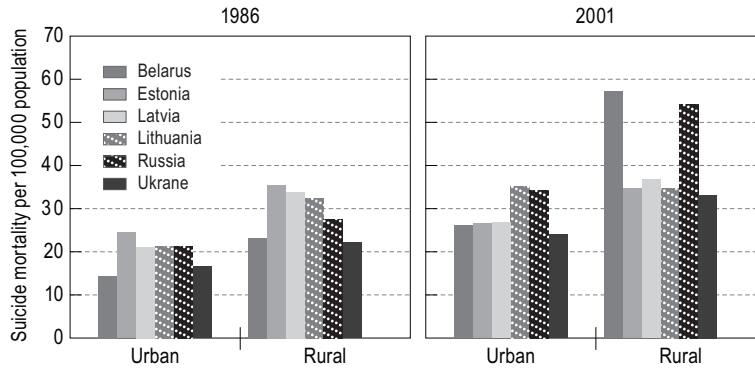

Figure 3.5. Urban and rural suicide rates in the Baltic and Slavic states during the transition (i.e., 1986–2001). Sources: Smidovich (1990) and WHO (2010).

3.2.3 Urban and Rural Suicides in the Baltic and Slavic Countries during the Transition

As shown in *Figure 3.5*, a comparison of urban and rural suicide mortality rates in 1986 (i.e., the beginning of the transitional period) and 2001 (2003 for Belarus) reveals the following trends:

- Rural rates were higher than urban rates in all countries.
- Both rural and urban suicides increased during the transitional period.
- Rural suicide rates increased more significantly than urban rates.
- In Lithuania, Russia, and Belarus, the increase in both rural and urban suicide rates was particularly high, with the greatest increase—246%—occurring in rural Belarus.
- In Estonia, both rural and urban suicide rates were relatively stable before and after the transitional period.

3.2.4 Changes in Male Suicide Rates in Urban vs. Rural Areas

The overall increase in rural suicide mortality rates throughout the latter half of the 20th century results primarily from changes in male suicide mortality rates. According to statistical data obtained from published literature (Isak, 2004; Razvodovsky & Stickley, 2009; Värnik, 1997) and via personal communication with Airi Värnik (Estonia), in Belarus, the 2005 mean male–female ratio of suicide mortality rates is 5.7:1 in urban areas and 8.1:1 in rural areas; in Estonia, the 2001

Table 3.1. Mean male–female ratios of suicide mortality rates in urban and rural areas by age and country.

Country	Mean male to female suicide ratio		Mean male to female suicide ratio among urban dwellers		Mean male to female suicide ratio among rural dwellers	
	Urban	Rural	Highest age group	Lowest age group	Highest age group	Lowest
Belarus (2005)	5.7:1	8.1:1	7.57:1 (45–54)	2.8:1 (75+)	11:1 (15–24)	5.9:1 (75+)
Estonia (2001)	3.6:1	5.8:1	9.5:1 (55–64)	1.6:1 (65+)	27.5:1 (35–44)	3.8:1 (15–24)
Moldova (2001)	4.9:1	6.4:1	8.5:1 (50–59)	1.26:1 (<20)	19:1 (20–24)	3.4:1 (<20)

Source: Lyudmyla Yur'yeva, calculated from WHO data.

ratio is 3.61:1 in urban areas and 5.8:1 in rural areas; and in Moldova, the 2001 ratio is 4.9:1 in urban areas and 6.4:1 in rural areas (see *Table 3.1*). The lowest male–female suicide ratios among these countries are in the urban elderly populations of Belarus (2.8:1) and Estonia (1.6:1) and the urban young population (<20 years old) of Moldova (1.26:1). The highest male–female suicide ratios are in the rural 15–44 age group; for example, the male–female ratio among rural dwellers in Estonia aged 35–44 is 27.5:1.

3.2.5 Factors Related to Rural-Urban Differences in Suicide Mortality

Two key social factors that appear to be related to the growing divergence between rural and urban suicide rates are marital status/family (as a protective factor) and employment. With respect to the former, suicide rates among both urban and rural populations are substantially higher among individuals who are out of marital relationships and living alone compared to those who are married and living with family. Compared to urban dwellers, suicide rates are 4.7 times higher among divorced rural dwellers, 3.5 times higher among individuals who are not married and live without family, and 3.3 times higher among those who are living alone. These results support a number of sociological studies that consider family to be an important protective factor against suicide (Durkheim, 1897/1951; Wasserman, 2001). The role of family is particularly important in rural areas, since family provides the individual with a basic level of emotional security, as well as social and financial support (Dunne-Maxim & Dunne, 2001; Wasserman, 2001).

Many scholars mention unemployment as a significant risk factor for mental ill health and suicidal behavior (Blakely *et al.*, 2003; Platt, 1984; Stuckler *et al.*, 2009). However, analysis of suicide rates among employed and unemployed populations in rural and urban localities in Russia yields unexpected results. Suicide rates in urban populations are higher among unemployed individuals (unemployed, 19.9 per 100,000 population; employed, 13.4 per 100,000). In rural areas, the distribution pattern is the inverse; that is, suicide rates are slightly higher among the employed than the unemployed (employed, 30.9; unemployed, 29.1). Employed rural dwellers commit suicide 2.3 times more often than employed urban dwellers. Unemployed rural dwellers commit suicide 1.5 times more often than unemployed urban dwellers.

There is some evidence that social factors affect suicidal behavior in males more than they do in females, with males more prone to reacting with suicidal behavior to changes in the social environment (Heikkinen *et al.*, 1995).

3.2.6 Alcohol/Drug Use and Other Medical Factors Associated with Suicidal Behavior in Rural vs. Urban Localities

As discussed elsewhere in this report, many studies have demonstrated an association between alcohol consumption and suicide (Kõlves *et al.*, 2006; Nemtsov, 2003; Razvodovsky, 2009; Värnik *et al.*, 2007). The relationship between suicidal behavior and drug use has been more controversial (Carson, 2008; Ohberg *et al.*, 1996; Youssef, 1990). However, 1990s data from Russia show markedly higher rates of suicide mortality among people addicted to drugs as compared to people addicted to alcohol, with mortality from suicide among people with drug addiction reaching catastrophic levels.[3] Suicide rates among urban drug abusers exceed suicide rates among alcohol abusers two-fold (drug abusers, 177.8; alcohol abusers, 91.0 per 100,000 population). The difference in rural areas is even greater: 3.3-fold (drug abusers, 322.6; alcohol abusers, 97.0 per 100,000 population). It is remarkable that suicide rates among individuals with chronic alcohol addiction differ only slightly in urban (91.0) vs. rural (97.0) areas, while at the same time there is a dramatic difference between suicide rates among drug abusers in urban vs. rural areas. Suicide rates among rural drug abusers are extremely high (322.6 per 100,000 population) and exceed the rates of urban drug abusers (177.8 per 100,000) 1.8-fold.

Suicide rates among individuals with psychiatric disorders are high in both rural (107.3) and urban (95.2) populations, with rural rates exceeding urban rates

[3]When asked about drug abuse in urban vs. rural areas, Yur'yeva commented on the widespread use of homemade drugs in rural areas. This led to discussion about what type of drugs are being used, with participants identifying amphetamines, tranquilizers, and other prescription drugs; Cannabis; and combinations of drugs as popular choices.

by about 12%. Suicide rates among patients diagnosed with cancer are 1.3 times higher among rural dwellers (38.2) than urban dwellers (28.8 per 100,000).

Finally, suicide rates in both rural and urban areas are very high among the disabled population and are not markedly different (urban, 109.8; rural, 104.3 per 100,000 population). Disability group 1 (the highest level of disability) exhibits the highest suicide rates, followed by disability group 2 (moderate level of disability) and 3 (relatively low level of disability), with some differences between urban and rural suicide rates among persons diagnosed with disability level 1 or 3. Specifically, suicide rates among individuals in the 1st disability group are 1.26 times higher among rural dwellers (183.6) than urban dwellers (145.6); suicide rates among disabled people in the 3rd disability group are 4.2 times higher in urban areas (50.6 per 100,000 population) than rural areas (11.8 per 100,000 population). This latter difference likely results from the fact that the third level of disability in urban areas is often accompanied by a sharp and rapid curtailment of social contacts, exclusion from the labor market, financial difficulties, and a precipitous drop in the standard of living, all of which serve as possible explanations for higher suicide mortality rates among urban dwellers. The social environment and more tolerant attitudes towards disabled people in rural areas (e.g., rural Slavic cultural traditions are very favorable to disabled persons) may create less stressful conditions for people diagnosed with 3rd level disability, which could explain the lower suicide rates.

In addition to these various social (family support, employment) and medical (drug addiction, disability) risk factors, a widening cultural gap between urban and rural areas of Eastern Europe may also be contributing to the growing divergence between urban and rural suicide rates.

3.2.7 The Concept of Rurality: Is Rurality a Fruitful Scientific Concept?

Mäkinen commented on the very visible nature of urban vs. rural differences in suicide mortality in Eastern Europe and suggested that as long as the division exists, its use may be helpful in analyses of suicide mortality trends. As Yur'yeva's data and presentation demonstrated, rurality is still a statistically significant category of social analysis in East European settings. However, she questioned the scientific status of the concept of rurality, noting that greater suicide mortality in rural populations may be a function of lower educational levels, worse economic situations, etc., in rural areas rather than rurality *per se*. The lack of appropriate data and evidence make it hard to tease apart "rurality" from these other underlying factors, she observed.

In terms of which underlying factors are most important, if indeed that is the case (i.e., that rural-urban trends are a function of underlying factors), it was suggested that rural-urban differences were perhaps related to greater deprivation and living a "harder" life in rural areas. However, there was some disagreement about the universality of a positive correlation between growing deprivation and higher suicide mortality and whether the former always leads to the latter. For example, the period between 1956 and 1984, when suicide rates doubled in the former Soviet Union, was, if anything, a period of strong positive economic development.

There was a comment about the fact that unemployment is a known risk factor for suicidal behavior, yet employed rural men have higher suicide rates than unemployed rural men. Yur'yeva responded that the data she presented on rural-urban differences were from just one country, Russia, and that more data from other countries are needed to better understand that specific trend. This study was only a first step toward understanding the problem. It was suggested that employment in rural areas is perhaps different from employment in urban areas; when one is unemployed in rural areas, one still has a house, etc., and so the stress of unemployment is different (see below for a summary of subsequent discussion around the need to articulate a clearer definition of unemployment in urban vs. rural environments).

3.2.8 The Need for Continued Research on Rural-Urban Differences

Conference attendees identified several major gaps in the suicidology research agenda that, if filled, would lead to a better understanding of rural-urban differences:

- *The need for a clearer definition of unemployment in urban vs. rural environments*. There was some discussion around how the concept of "rural employment" varies among Baltic, Slavic, and other countries. In Ukraine, for example, rural employment does not involve having a salaried position; rather, it refers to having a farm, garden, etc. This raises questions about whether measurements of employment in different settings are comparable. A clearer definition of unemployment would allow for more accurate measurements and comparisons of the relationship between suicide and unemployment levels across different cultural and social environments.

- *The need for comparative studies*. Touching upon what would emerge as a major overarching theme of the conference (e.g., see the Chapter 4 discussion on the need for comparative studies of suicide prevention programs), there was some discussion around the need for more comparative studies of rural vs. urban suicide rates. For example, do the low suicide rates observed

in the eastern (urban) United States correspond to those observed in post-Soviet urban areas? And do the higher rates in the mountain belt (rural) states correspond to the higher rates observed in post-Soviet rural areas?

- *The need for qualitative research that complements the largely quantitative research underway*. The discussion on rurality led to some dialogue around whether there is some type of underlying "life scenario"—an attitude toward or perception of life—that operates differently, perhaps on an unconscious level, in individuals who live in rural vs. urban areas. This in turn led to a comment about the need for more qualitative research on suicide risk factors (e.g., such as "life scenario") to supplement the growing body of quantitative research in that area.

- *The need to include more parameters in studies of rural-urban variation*. Several participants agreed that future rural-urban analyses of suicide should include more parameters, such as income inequality, in order to clearly identify risk factors.

- *The need for large longitudinal health surveys*. There was some discussion around the fact that rurality is an aggregate risk factor and that there is a need for longitudinal health surveys aimed at teasing apart individual (or household) risk factors.

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4

Social and Public Health Determinants of Suicide

Suicide rates across Eastern Europe vary tremendously, both among and within countries, suggesting that social factors likely play a key role in increasing, or decreasing, the risk of suicide. The main objective of the Tallinn conference was to develop an evidence base for understanding the social determinants of suicide, particularly in relation to the socioeconomic transformation that the former Soviet states and satellite countries experienced during the transition to a market economy. Conference participants identified poverty and income inequity; educational level; employment and discrepancies between employment and educational level; alcohol use; and religiosity as major social and public health determinants of suicidal behavior. This chapter summarizes the evidence base for each of these factors.

Jüri Allik described studies demonstrating seemingly paradoxical correlations between suicide and certain personality traits. For example, there is a positive correlation between suicide rate and level of happiness in industrialized countries. These paradoxical results suggest that suicides are associated with the relationship between individual happiness (or another personality trait) and societal norms for happiness, not the absolute level of happiness that a person is experiencing.

Yakov Gilinskiy used data from Russia to explore the connection between socioeconomic inequality/status and suicide. Despite a gradual decline in suicide mortality over the past decade, Russia still has one of the world's highest suicide rates. Gilinskiy argued that this is because of the dramatic social change and growing economic polarization of the Russian population over the past two decades. He summarized evidence indicating that suicide risk in Russia depends on educational level, with the highest risk found among the least educated; professional status, with the highest risk among the unemployed; and, interestingly, discrepancies between educational level and professional status. Gilinskiy also expounded on the generality of the results to other countries due to a growing proportion of "the excluded" worldwide.

András Székely used data from Hungary to identify statistical associations between a range of psychosocial factors, including different coping strategies, and suicidal behaviors. Not only has Hungary, like Russia, witnessed a tremendous increase in socioeconomic inequality over the past couple of decades, it has also suffered from increasing demoralization, growing unemployment and other work-

related changes (e.g., increasing insecurity, decreasing perceived control in work, overwork, income inequities), and increasing family instability at a time when the importance of family support as a form of social support has been growing. Székely described the results of surveys conducted in 1995 (12,527 Hungarians) and 2002 (12,653 Hungarians) on the relationship between suicidal behavior (suicidal ideation and suicide attempts) and various psychosocial and demographic factors. According to the surveys, inadaptive ways of coping (i.e., alcohol and drug abuse), family problems (e.g., lack of help, history of suicide in the family), little social support, hostility, anomie, depression, low education, and unemployment are the most predictive.

Merike Sisask described several evidence-based conclusions derived from a number of recent studies on the relationship between religiosity and attempted and completed suicides:

- Religious context (i.e., prevalence of religion in a country) is a major cultural factor in the determination of suicide.
- In the former USSR, regions with Christian backgrounds (i.e., the Baltic and Slavic States) have higher suicide rates than regions with other religious backgrounds, although the varying impact of Christianity among countries and religion does not sufficiently explain all observed regional differences (e.g., in Caucasia).
- Religious heritage does not explain differences in suicide rates among the Baltic States, and the so-called "Baltic Suicide Paradox" (i.e., the high suicide rates in the Baltic countries despite the purportedly protective effect of Catholicism) needs further research.
- Religion has exerted an ideological influence on suicide attitudes in Western Europe but not in most of Eastern Europe (except Poland).
- Suicide rates in Europe correlate positively with statements expressing religious inclination and inversely with secular, self-centered statements.
- Subjective religiosity (i.e., considering oneself to be a religious person) may serve as a protective factor against suicide in some, but not all, countries.

Finally, William Pridemore discussed evidence from Russia and Slovenia showing a strong population-level association between suicide and alcohol consumption. Specifically, he described three studies, all of which reached the same conclusion— that, at the population level, alcohol consumption is a significant determinant of suicidal behavior. Because the studies were so different in terms of geography and methodology and yet reached the same conclusion, they provide a

solid evidence base for moving forward with the development of suicide prevention policies around alcohol control. He cautioned, however, that a population-level association between alcohol consumption and suicide mortality does not mean that other, equally important individual, familial, cultural (e.g., "value of life" and what people drink), or other effects should not be considered.

While most of the dialogue on socioeconomic determinants of suicidal behavior revolved around the factors explored in this chapter, there was a brief discussion around the fact that immigrants represent another important risk group for high suicide rates and that there are striking differences among different ethnic groups living in otherwise similar conditions. Unfortunately, suicide mortality data on immigrant populations are very difficult to obtain. Preliminary data on suicide attempts in immigrant populations in Western Europe suggest that while suicide attempt rates are not necessarily higher than those of their host populations, some specific immigrant groups merit more attention in the future.

4.1 Culture, Attitudes, and Suicide[1]

Allik remarked that the global geographic distribution of personality traits exhibits regular patterns and that examining that distribution could be helpful in understanding the relationship between various personality traits and suicide. The study of the geographic distribution of personality traits and other social factors has relied on the use of thematic, or chloropleth, maps. Pierre Charles François Dupin (1784–1873) was the inventor of thematic maps. One of the first thematic maps produced by Dupin was a map of illiteracy in France. A comparison of Dupin's illiteracy map with other thematic maps (e.g., André-Michel Guerry's [1802–1866] suicide map, which was included in Guerry's famous 1833 *Essay on Moral Statistics of France*) immediately reveals some noticeable geographic patterns (Friendly, 2007). However, another early moral statistician, Alexander von Oettingen (1827–1905), known for his book *Moral Statistics* (1868), used no maps, only tables. All of this early moral statistics work by Dupin, Guerry, von Oettingen, and others paved the way for Emile Durkheim's (1858–1917) first genuinely social theory of suicide. Durkheim posited that suicides were the result of a loosening of the bonds that normally integrate individuals into the "collectivity" and that a breakdown or decrease in social integration was the main cause of suicide (Durkheim, 1992). Allik held that much of the discussion at the Tallinn conference was "Durkheimian" in the sense that it was aimed at trying to identify social factors that influenced suicidal behavior.

[1]This section summarizes information presented by Jüri Allik at the Tallinn conference, as well as the discussion following Allik's presentation.

While Durkheim's focus was on the social nature of suicide, in 1971, Richard Lynn (1930–) was the first to put forth a psychological theory of suicide in his book *Personality and National Character*. Lynn was driven by curiosity about the very high suicide rate in Ireland. He suggested that it was related to personality traits, namely neuroticism (Allik, 2012). At the time, most countries had virtually no data with which to test the hypothesis. Only later were psychologists able to begin collecting the necessary data from various countries. The notion that suicide has a psychological component not only contradicted what Durkheim and the early moral statisticians believed about the cause of suicide, it also raised a very important question: What type of indicator can be used to predict the suicide rate or its means of execution across cultures?

It is not unreasonable to assume that people are committing suicide not because they are happy but because they are desperately unhappy. However, the first person to test this suicide–unhappiness correlation reported the opposite. In his 1989 book *Culture Shift in Advanced Industrial Society*, Ronald Inglehart, who conducted the largest study of human values in the world, covering more than 90% of the global population and nearly 100 countries, observed that among industrialized nations the relationship between the suicide rate and subjective well-being was generally positive, not negative (Inglehart, 1989). He wrote, "Suicide rates tend to be higher in those nations that rank high—not low—on subjective well-being." In a study of 13,118 college students from 50 countries, Ed Diener also found that the suicide rate was correlated with general satisfaction with life (Diener and Diener, 1995). There are some exceptions to this—for example, Bray and Gunnell (2006) found a modest negative association between suicide rates and life satisfaction and happiness in a limited sample, but generally, the correlation is positive worldwide.

What explains these seemingly paradoxical results? Inglehart recognized that while suicide rates are positively, not negatively correlated, with national-level reports of life satisfaction, suicide is committed only by a small fraction of the population. He suggested that cultures with high suicide rates are those where happiness is the norm, because the expectation of happiness may make being unhappy even more unbearable and produce a greater sense of isolation than in cultures where misery is the norm.

Collecting reliable data on relevant personality traits is challenging within countries and especially cross-culturally. One of the most popular methods is the NEO PI-R questionnaire, which was developed by Paul Costa and Jeff McCrae (1992) and has been translated into almost 50 languages. More recently, researchers have begun using the Internet to post questions and gather data. For example, Rentfrow *et al.* (2008) posted a 41-item personality questionnaire and received responses from more than half a million respondents over the course of several months. They then used the data to plot personality maps for the United States. One of the traits they examined was neuroticism, defined as the general ten-

dency to experience negative emotions such as fear, sadness, embarrassment, anger, and guilt. The authors reported a positive correlation between neuroticism and the inability to cope well with stress. Low scorers (i.e., individuals who score low for neuroticism) tend to be calm, even-tempered, and relaxed and are able to deal with stressful conditions without becoming upset or rattled. The researchers also reported very uneven distribution of neuroticism across the United States. However, again, seemingly paradoxically, the geographic distribution of neuroticism reported by Rentfrow *et al.* (2008) is inversely correlated with the geographic distribution of suicide rates across the United States (r = -0.42), with the highest suicide rates in states with lower neuroticism. Suicide rates are higher, on average, in states where people are reporting fewer negative emotions.[2]

These paradoxical results suggest that suicide rate is not necessarily a good indicator of societal well-being, or vice versa. Because the relationships between suicide and happiness/neuroticism are not as expected, more sophisticated explanatory theories are needed. The social comparison theory of Leon Festinger (1954), whereby individuals evaluate their own opinions and desires by comparing themselves to what they think about other people's opinions and desires, may be an appropriate approach to explaining these contrary, paradoxical results.

4.2 Socioeconomic Status and Suicide[3]

As Nemtsov elaborated (see Chapter 2), Russia retains one of the highest suicide rates in the world, despite a gradual decline over the past decade. Gilinskiy argued that this could result, at least in part, from the dramatic social change and growing socioeconomic inequality that the country has experienced over the past two decades. The income differential between the 10% least prosperous and the 10% most prosperous proportions of the population widened from 1:4.5 in 1991 to 1:15.1 in 1994 and to 1:18.0 in 2009. Some experts claim that, today, the income differential may be as high as 1:23–25 nationwide and, in Moscow, 1:40–50 (UNDP, 2005). Another indicator of growing socioeconomic inequity, the Gini index,[4] increased from 0.289 in 1992 to 0.410 in 2007. A growing body of evidence

[2]Following Allik's presentation, there was a question about the representative nature of the Rentfrow *et al.* (2008) survey with respect to age. If most suicides are among middle-aged individuals and the survey covered mostly younger adults, then it is not surprising that there may be some discrepancy. Allik replied that while, yes, self-recruited Internet surveys are biased, particularly with respect to age and education, with most respondents being younger and better educated, those biases can be corrected. Rentfrow *et al.* (2008) examined correlations as a function of age.

[3]This section summarizes information presented by Yakov Gilinskiy at the Tallinn conference, as well as the discussion that followed. The text is supplemented with details from Gilinskiy's submitted paper.

[4]http://www.yestravel.ru/world/rating/economy/distribution_of _family_income_gini_index/

points to socioeconomic inequality as one of the most important factors generating criminality, deviance, and suicide (Gilinskiy, 2007 and 2009; Ol'kov, 2007; Jusichanova, 2007; Skifsky, 2007).

Gilinskiy used four sources of data to evaluate suicidal behavior in relation to socioeconomic status.[5] First was Gilinskiy's case study in St. Petersburg (1971) and Orel (1971–1972), based on materials containing the social and demographic characteristics of more than 150 suicidents in St. Petersburg and more than 100 in Orel (a city in Central Russia) in what was the first empirical study of suicide in the post-Stalin Soviet Union (Gilinskiy *et al.*, 1979). While comparatively primitive, the study yielded interesting results. For example, the suicidal activity index (ratio of the social or demographic group among suicidents) in St. Petersburg was: workers, 1.7; employees, 0.7; students, 0.3; and pensioners, 0.8. The index for uncompleted suicide (attempted suicide) was similar: workers,1.2; employees, 1.1; students, 0.4; and pensioners, 0.6 (Gilinskiy & Junatskevitch, 1999). The second source of data was a study conducted by Anna Mal'chenkova on social stratification and socioeconomic inequality as a suicidogenic factor (Mal'chenkova, 2002). Materials on more than 200 suicides from across all districts of St. Petersburg were studied. The third was an original study of suicide risks conducted in 2006–9 by E. Ushakova. On-line interviews of more than 1,920 people were conducted (http://www.psycorr.com)(Ushakova, 2008 and 2010). The EPI (Eysenck Personality Inventory) questionnaire and Junatskevitch scale of suicidal risk (Gilinskiy & Junatskevitch, 1999) were used to ask 81 questions, including 24 on introversion/extraversion, 24 on stability/instability (i.e., neuroticism), 24 on suicide risk, and 9 on the sincerity of the respondent. The fourth was a so-called "secondary analysis" of results from Russian sociological studies of suicide (Bogojavlensky, 2002; Mjagkov & Smirnova, 2007; Orlova, 1998; Smidovich, 1990).

4.2.1 Overview of Results

The key results of an analysis of these four datasets follow:

- Suicidal risk depends on educational level, with the highest risk found in respondents with an incomplete secondary education. Increasing educational levels were associated with lower risks (Gilinskiy & Junatskevitch, 1999; Gilinskiy, 2007; Mal'chenkova, 2002; Ushakova, 2008 and 2010). Mjagkov and Smirnova (2007) showed an increased level of uncompleted suicide

[5] Gilinskiy's presentation prompted some discussion around use of the terms "inequity" and "deprivation" and the fact that while inequity and deprivation may be statistically linked, they are different phenomena. The data that Gilinskiy presented dealt with changes in socioeconomic status that occurred as a consequence of the growing socioeconomic inequity in Russia, so while inequity creates the "suicidogenic" situation, quantitative measures of the resulting deprivation are the actual indicators used to evaluate socioeconomic risk factors for suicidal behavior.

among individuals aged 16–29 years. Gulin and Morev (2010) also noted a high level of suicide attempts among youth, with 46% of 129 suicidents under the age of 30. Collectively, these studies suggest that the greatest suicide risk is among individuals who have not completed secondary education.

- Suicide risk depends on professional status, with the highest risk among unemployed respondents and the lowest among managers, experts, and employees (Ushakova, 2008 and 2010).

- Suicide risk depends on discrepancies between educational and professional status. The greater the discrepancy, the greater the risk. For example, the highest suicide risk is among leaders with low general and professional education and engineers without higher education, and the lowest among leaders with higher education. In fact, this imbalance appears to be one of the greater socioeconomic risk factors for suicidal behavior based on the data examined here (Spiridonov, 1986; Ushakova, 2008 and 2010).

- There is greater suicide risk among conscripted soldiers, retired military officers, and the prison population than in the population at large (Gilinskiy, 2007).

4.2.2 Generality of Results

This evidence supports the hypothesis that socioeconomic inequality is an important suicidogenic factor—not just in Russia but worldwide. Lenoir (1974), Paugam (1996), Luhmann (1997), and Young (1999, 2007) have all written about globalization's tendency to divide people and societies into the "included" and the "excluded." The included are individuals who are part of the "functional system" (i.e., included in economic, political, social, educational, cultural, and other spheres of human activity). The excluded are those who merely exist and are not part of the functional system (i.e., they lack the opportunity to play an active role in the different areas of social life). As Luhmann (1997) explains, society has shifted from hierarchical relationships to relationships based on differentiation by inclusion/exclusion, with some people being included in functional systems and others excluded. As Paugam (1996) explains, the new global phenomenon of inclusion vs. exclusion is related to a breakdown in social connections, with the sense of loss of place in society giving rise to great dissatisfaction among the excluded. Many people are excluded in contemporary Russian society, including the homeless and the unemployed; the poor; beggars, refugees, and ethnic minorities; people addicted to drugs and alcohol; orphans and older single people; and prisoners. The same is probably true of other countries. Gilinskiy held that socioeconomic inequality

and social exclusion will always exist. The challenge, he said, is to reduce their negative consequences.

Following Gilinskiy's presentation, there was some discussion around an apparent discrepancy between the rise of socioeconomic inequity in Russia and constant suicide rates over time, if the former is indeed a predictor of the latter. In particular, there was a question about why suicide rates were the same in 1991 (26.5) and 2009 (26.5) if socioeconomic inequity is such an important suicidogenic factor. Gilinskiy replied that while socioeconomic inequity/status is an important risk factor for suicide (as well as for homicide, alcoholism, etc.), it is not the only one. For example, suicide rates fell in 1986–7 because of optimism about the future. In 1991–2, rates began to rise when optimism dissipated. It is not clear why rates began decreasing again in the mid-2000s.

There was also some discussion around the intriguing finding that discrepancy between educational and professional status is an indicator of suicidal behavior and arguably a more significant one than either educational or professional status alone. Conference participants discussed the concept of "life scenario"—the notion that there is some type of satisfaction factor (i.e., satisfaction with one's life) that is an important indicator of suicidal behavior, and that this satisfaction factor is context-dependent (i.e., a sense of satisfaction in one country or environment is different from a sense of satisfaction in another country or environment).

4.3 Social Change, Civil Society, and Suicide: Psychosocial Risk Factors Associated with Suicidal Behavior in Hungary[6]

András Székely used data from Hungary to explore the suicidal risk consequences of the massive social transformation and fundamental changes in work and family life that have been occurring throughout Eastern Europe over the past several decades. Hungary has experienced not only growing socioeconomic inequity, with increasing socioeconomic deprivation over the past couple of decades, but also growing demoralization (i.e., increasing anomie, an especially challenging social condition given the Hungarian cultural propensity to uncertainty avoidance[7]), rising

[6]This section summarizes András Székely's presentation at Tallinn, with some details from his submitted paper, which was co-authored by Mária S. Kopp and Szilvia Ádám.

[7]Geert Hoftsted (social scientist, 1928–) conducted an extensive analysis of cultural value data and identified five dimensions of culture: individualism, uncertainty avoidance, masculinity–femininity, power distance, and long-term orientation. For example, uncertainty avoidance is a measure of the extent to which a culture feels comfortable or uncomfortable in unstructured situations (see www.geert-hofsted.com for more details)

unemployment and other work-related changes (e.g., increasing insecurity, decreasing perceived control in work, overwork, income inequities), and growing family instability at a time when the importance of family as a form of social support has been growing. (See Chapter 2 for a summary of major trends in Hungarian suicide rates, based on Katalin Kovács's presentation).

As Székely summarized, suicide rates in Hungary gradually increased after 1920, spiking during WWII in 1944;[8] they decreased after 1944 until 1956, presumably because of the failure of the Hungarian Revolution, and then rose to an even higher level in the 1980s than in 1944. Toward the late 1980s, the rates began falling again, although there is no convincing explanation for the downward trend. Despite growing societal disappointment in the early 1990s, suicide rates continued to fall through 2004. The downward trend has been impressive and unique in comparison with most other East European nations. Still, Hungary's suicide rate remains very high.

4.3.1 Two Surveys of the Hungarian Population: 1995 and 2002

Székely described the results of two surveys on psychosocial factors associated with suicidal behavior in Hungary. Separate surveys were conducted in 1995 and 2002, with 12,527 and 12,563 respondents, respectively. The 2002 data were collected as part of the Hungarostudy 2002 (Kopp & Kovács, 2006), a national cross-sectional survey of the Hungarian population. Respondents were categorized by gender, age, and place of residence. Respondents were asked approximately 600 questions on suicidal ideation, attempted suicide, suicide in the family, depression, coping, social support, alcohol consumption, use of stimulants or sedatives, employment, and other demographic characteristics.

Demographic factors associated with suicidal behavior

Székely and colleagues identified several significant demographic predictors of suicidal behavior:

- *Employment*: In 1995, 21.7% of all respondents reported having had some suicidal thoughts, and 2.6% reported having attempted suicide. Unemployed and unskilled workers reported more suicidal ideation (37.6 and 30%, respectively) and attempted suicides (7.2 and 6.2%, respectively) than people in other employment categories. In 2002, 10.34% of all respondents reported

[8] Following Székely's presentation, a comment was made about the 1944 spike in suicide rates in Hungary and how the spike could be attributed to the very high suicide rates known to exist at the time in the country's Jewish population. Székely commented on uncertainty around the reliability of suicide statistical data during that time because of the prevalence of firearms and the likelihood that many murders of Jewish individuals were reported as suicides.

having had some suicidal thoughts, and 1.85% reported having attempted suicide. The disabled, mothers on childcare leave, and the unemployed reported more suicidal thoughts (21.6, 14.8, and 14.7, respectively) and attempted suicides (5.0, 4.2, and 4.3, respectively) than people in other employment categories. It is not why clear why the percentage of unemployed workers reporting suicidal ideation decreased as much as it did between the two years.

- *Education*: Interestingly, the highest suicide attempt rates were not among the least-educated people in either year (i.e., primary or less in 1995; less than primary in 2002). Rather, in 1995, individuals with primary education plus another course of study reported the highest suicide attempt rates (6.52%). Likewise, in 2002, individuals with only primary education reported the highest rates (4.40%).

- *Age*: In both 1995 and 2002, the highest prevalence of suicide attempts was in the 50–59 age group (5.4% in 1995 and 4.0% in 2002).

- *Marital status*: Individuals who are either married but not living with their spouse, divorced, or cohabitating with a partner reported the highest suicide attempt rates both years. In 1995, 14.4% of married individuals not living with their spouse reported attempting suicide; in 2002, that figure fell to 6.34% but was still among the highest compared to other marital status groups. The percentage of divorced individuals reporting attempted suicide was 7.7 and 9.0 (living with a new partner and not living with a partner, respectively) in 1995 and 6.4 in 2002. The percentage of cohabitants reporting attempted suicide was 8.8 in 1995 and 6.7 in 2002. Székely commented on the significance of this last finding, given the increasing rate of cohabitation among unmarried partners in Hungary and elsewhere.

- *Religious practice*: With respect to religious practice (e.g., frequency of church attendance and other social behaviors), in 2002 people who said that they are believers but are practicing religion in their "own way" (as opposed to nonbelievers, individuals who attend church regularly, etc.) reported the highest suicide attempt rate (3.8%).

All types of suicidal behavior were associated with higher Beck Depression Inventory (BDI) scores, with individuals reporting no suicide attempts showing no significant depression (BDI scores of 7.8 and 7.7 in 1995 and 2002, respectively) and individuals reporting single or multiple suicide attempts showing signs of mild to severe depression (BDI scores ranged from 13.6 and 16.0 for individuals reporting suicide attempts without medical attention in 1995 and 2002, respectively to 20.1 and 18.2 for individuals reporting multiple attempts in 1995 and 2002,

respectively—14.4 and 8.1% of individuals reporting either single or multiple attempts in 1995 and 2002, respectively, received BDI scores of over 25, which are considered severe depression).

Psychosocial factors most closely associated with suicidal behavior

Székely and colleagues conducted a multivariate regression analysis to identify which of the various psychosocial data collected were most closely associated with suicidal ideation and suicide attempts (Adám *et al.*, in preparation). In 1995, the top six most predictive factors of suicidal ideation were: (1) eating, drinking, and smoking in difficult life situations; (2) drug use in difficult life situations; (3) Beck depressive symptomatology; (4) suicide in the family; (5) hostility in the family; and (6) lack of social support in family. In 2002, the top six factors most predictive of suicidal ideation were: (1) Beck depressive symptomatology; (2) aggression in difficult life situations; (3) drug use in difficult life situations; (4) suicide attempts in the family; (5) lack of purpose in life; (6) drug abuse. Székely pointed out that, interestingly, religious behavior, specifically praying in difficult life situations, ranked among the top psychosocial factors associated with suicidal ideation in both years.

With respect to suicide attempts, drug use in difficult life situations was identified as the most significant predictor in both 1995 and 2002. The second most important risk factor was having had a suicide in the family (1995) or a suicide attempt in the family (2002). Székely pointed out that while Beck depressive symptomatology was identified as the third most important risk factor in 1995, it was not a significant one in 2002. That Beck depression scores did not show up as an important risk factor in 2002 does not necessarily mean that depression is not a predictor of suicide; rather, it underscores how critically important it is to consider all the other factors that do yield statistical significance and may underlie depression (e.g., drug use in difficult life situations, suicide attempt in the family, alcohol and drug abuse, no purpose in life, lack of trust in others, no help from a partner or friend) when developing suicide prevention strategies. Also interesting was the fact that the inability to pursue an education appeared as a significant risk factor for suicide attempts in 1995.

Summary

In summary, the main demographic and psychosocial factors associated with suicidal ideation and suicide attempts are:

- Inadaptive ways of coping (i.e., alcohol and drug abuse)
- Family problems (e.g., lack of help, history of suicide in the family)

- Little social support
- Hostility, anomie, no purpose in life
- Depression
- Low educational level, unemployment

4.3.2 The Need for Comparative Studies: Is Hungary's Situation Unique?

Following Székely's presentation, there was some agreement about the need for more collaborative research to determine which of the many risk factors identified as important in Hungary are important elsewhere. While collaborative research would be expensive, it might be something worthwhile for the WHO to consider when developing its international suicide prevention research program.

When asked following his presentation whether the Hungarian attitude toward suicide has changed over the years, Székely replied that, yes, it has changed. Still, the attitude toward suicide is not as negative as it is in other cultures. Hungary has a history of famous suicides, and many Hungarians continue to believe that there are situations where suicide is the only solution.

4.4 Religion/Religiosity as a Determinant of Suicide: Risk or Protection?[9]

For more than a century, since the publication of Emile Durkheim's groundbreaking classic *Suicide: A Study in Sociology* in 1897, most, but not all, research findings have demonstrated an inverse association between religiosity and suicidal behavior, with religiosity exerting a protective effect (i.e., the greater the religiosity, the lower the risk of suicidal behavior). However, exceptional results have aroused controversy around the generality of the association. The challenge in understanding the association between religion, or religiosity, and suicide is compounded by the fact most studies cannot be compared—study designs vary (i.e., from ecological to individual-level designs), target groups vary, the aspects of suicidality examined vary (i.e., completed vs. attempted suicides vs. suicidal ideation vs. attitudes toward suicidal behavior), and the questions asked vary.

But first, what is religion? Sisask cited Koenig *et al.* (2001): "Religion is an organized system of beliefs, practices, rituals, and symbols designed to (a) facilitate closeness to the sacred or transcendent (God, higher power, or ultimate

[9]This section is based largely on information presented by Merike Sisask at the Tallinn conference.

truth/reality) and (b) to foster an understanding of one's relationship and responsibility to others in living together in a community." According to Koenig *et al.* (2001), the many different dimensions of religion include: religious belief, religious affiliation or denomination, organizational religiosity, nonorganizational religiosity, subjective religiosity, religious commitment/motivation, religious "quest," religious experience, religious well-being, religious coping, religious knowledge, and religious consequences. In other words, religion is a multidimensional phenomenon that is much more than belonging to a specific denomination or membership in a church.

The scientific literature contains a great deal of research based on Durkheim's classical theory that religiosity is a protective factor (Durkheim 1897; Stack, 1983; Dervic *et al.*, 2004; Neeleman, 2004; Faria *et al.*, 2006; Moreira-Almeida *et al.*, 2006), with studies showing that religion integrates and regulates social behavior. Another active area of research is the relationship between formal religious affiliation/denomination and suicidality (Bertolote & Fleischmann, 2002; Hilton *et al.*, 2002; Clarke *et al.*, 2003; Dervic *et al.*, 2004; Faria *et al.*, 2006), with studies showing differences between religions where suicidal behavior is strictly forbidden (e.g., Judaism, Islam, Christianity) and religions where suicidal behavior is more acceptable (e.g., Hinduism, Buddhism). Another area of research is the relationship between moral objection and condemnation, such as that which occurs when a religion forbids the ending of one's life, and suicidality (Pescosolido & Georgianna, 1989; Stack, 1992; Kelleher *et al.*, 1998; Khan, 1998; Neeleman, 1998; Tousignant *et al.*, 1998; Khan & Reza, 2000; Pritchard & Baldwin, 2000; Kirby, 2001; Bolz, 2002; Dervic *et al.*, 2004; Eskin, 2004; Lester, 2006). Yet another active area of research revolves around religious commitment and core beliefs, as opposed to the formal construct provided by any particular religious affiliation (Stack, 1983 and 1992; Greening & Stoppelbein, 2002), and their association with suicidality. Other areas of active research include the association between religious practice/church attendance and suicidality (Lester, 1987; Stack & Lester, 1991; Siegrist, 1996; Kelleher *et al.*, 1998; Neeleman, 1998; Duberstein *et al.*, 2004; Musick *et al.*, 2004; Koenig, 2005; Moreira-Almeida *et al.*, 2006; da Silva *et al.*, 2006); the relationship between religious social networking and suicidality (Pescosolido & Georgianna, 1989; Stack, 2000; Nisbet *et al.*, 2000); and the relationship between subjective religiosity (i.e., rather than formal religious affiliation) and suicidality (Stack, 1983; Neeleman, 1998; Walker & Bishop, 2005; Moreira-Almeida *et al.*, 2006).

Sisask did not present a comprehensive picture of the relationship between religiosity and suicidality. Rather, she examined "pieces of the puzzle" that are characteristic of the East European region.

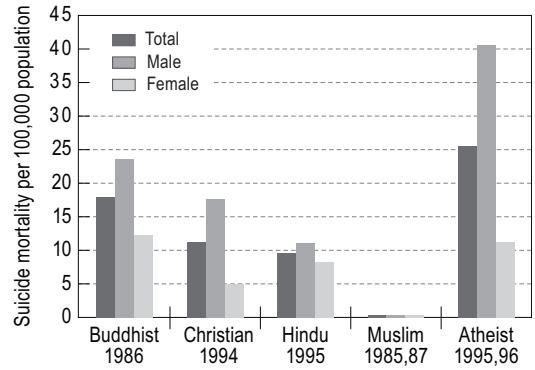

Figure 4.1. Suicide rates (per 100,000 population) by religion. Source: Bertolote and Fleischmann (2002).

4.4.1 Association between Religious Denomination and Suicide Mortality Variation and Gender Disparity in Suicide Mortality

In an aggregate-level study, Bertolote and Fleischmann (2002) demonstrated variation in overall suicide rates, as well as gender disparity in suicide rates, among Buddhist, Christian, Hindu, Muslim, and atheist countries (defined as such on the basis of the prevalent religious denomination), with the highest suicide rates in atheist countries and the lowest in Muslim countries (where suicide is strictly forbidden) (see *Figure 4.1*); and greater gender disparity in atheist and Christian countries, with the least amount of gender disparity in Hindu countries.

Following Sisask's presentation, there was some discussion around the extent to which differences between Poland's strong Catholic tradition and the consequent condemnation of suicide throughout history as a result vs. Hungary's lack of a similarly strong religious tradition (i.e., one with strong condemnation of suicide throughout history) contribute to differences in suicide mortality rates between the two countries. As described in Chapter 2, Poland's mean suicide rate for 2000–2008 was 15.2 per 100,000 population, compared to Hungary's 24.1 per 100,000 population in 2006. Could Poland's Catholic legacy have something to do with its lower suicide rates? There was some disagreement among conference participants about whether the difference in attitude toward suicide between Poland and Hungary is religious or cultural in nature.

4.4.2 Regional Variation in Suicide Rates in the Former Soviet States

Wasserman *et al.* (1998) examined regional suicide rates in the former USSR and found the highest suicide rates in the Slavic and Baltic countries, which are largely

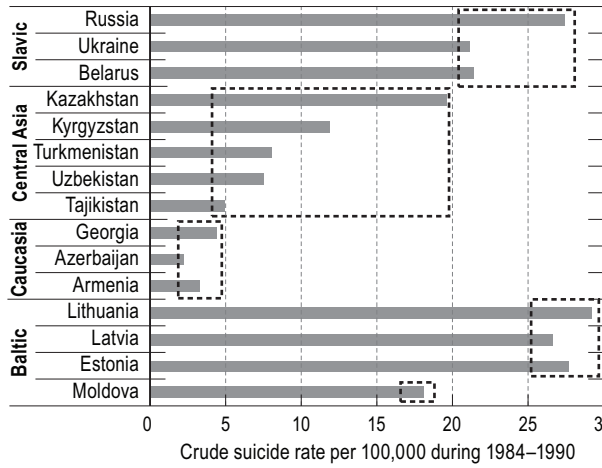

Figure 4.2. Suicide rates (per 100,000 population) in the former Soviet states. Source: Wasserman *et al.* (1998).

Christian (i.e., Lithuania, Russia, Estonia, Latvia, Belarus, and Ukraine, in descending order) and the lowest rates in Caucasia (Georgia, Armenia, and Azerbaijan, in descending order) and the Central Asian states (Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan, and Tajikistan, in descending order) (see *Figure 4.2*). Kazakhstan, with a native Muslim minority, has the highest rate among the Central Asian countries. Islamic Azerbaijan in Caucasia exhibited the lowest suicide rate. The low overall suicide rates in Caucasia are difficult to interpret, given that Georgia and Armenia are predominantly Christian. Some other factors, such as familial factors, may be contributing to the low suicide rates in Caucasia.

4.4.3 The Baltic Suicide Paradox

Värnik *et al.* (2010) explored the disparity in suicide trends among the Baltic States during the post-transitional period. One would expect the rates to be very similar, but they are not. The challenge in understanding why the differences exist is complicated by the fact that Estonia is predominantly Protestant, Latvia is part Protestant and part Catholic, and Lithuania is predominantly Catholic. One would expect Catholicism to protect against suicide, yet Lithuania has the highest rate among the three countries. That the suicide rates are different and that Lithuania has the highest rate despite the purportedly protective effect of Catholicism is known as one of the "Baltic suicide paradoxes."

As Värnik *et al.* (2010) discuss, one explanation for this paradox is that the culture of present-day generations, religious or not, is influenced by the religious faith of their forebears. Societies with weak religions in the past were more vulnerable to

the Soviet regime and active atheist propaganda. An initially stronger psychological resilience based on a common Catholic legacy and the profound disappointment that ensued as the Soviet regime persisted may explain why changes in Lithuanian suicide rates occurred later in time and on a larger scale than in Estonia and Latvia.

4.4.4 Association between Religiosity and Suicide Acceptance

In a study on suicide acceptance and religiosity, Mäkinen (2007) used data from the World Value Survey (WVS) 1990/1991[10] to show that personal religiosity was inversely correlated with suicide acceptance. That is, the more important religion is in a person's life, the greater protection it provides against suicide acceptance. Moreover, personal religiosity was the only variable of any great importance relative to the effects of various demographic and social factors, such as gender, education, and depression. Among the most interesting findings in Mäkinen (2007) was an East-West divide, with an all-European model not fitting equally well in all countries and differences aligning with geographical "East" and "West" (i.e., the pre-1990 political division of the continent). In the West (i.e., Western Europe and Poland), suicide attitudes were formed under the influence of religion. In the countries of the former political East, religion did not exert a strong ideological influence.

4.4.5 Association between Religiosity Components and Suicide Mortality

Sisask compared unpublished International Social Survey Programme (ISSP) religiosity data on 12 European countries participating in the 'Religion I' module of the cross-national global survey in 1991, suicide rates from the WHO European Mortality Database (MDB), and Schmidtke *et al.* (1999) data on 12 East (Hungary, Russia, Slovenia, East Germany, Poland) and West European countries (Austria, West Germany, Norway, Ireland, Netherlands, Great Britain, Italy). An analysis of correlations between the aggregated means of various religious variables ("feel close to God," "describe yourself as religious," etc.) and suicide mortality yielded a strong negative correlation between all selected religion-related variables (see *Table 4.1*). Moreover, an interesting result was a positive correlation between believing that "we each make our own fate" (as an indication of secularity and self-centrism) and suicide mortality, in contrast with an inverse (negative) correlation between believing that "the course of our lives is decided by God" (as an indication of religious inclination) and suicide mortality. Differences between East and West Germany in the scores on different religiosity scales were significant. West Germany religiosity scores were 12–32% higher than those of East Germany, while the scores were

[10] For more information on the World Values Survey see www.worldvaluesurvey.org.

Table 4.1. Correlations between aggregated means of religious variables and suicide mortality (1990–1995 average) in 12 European countries.

Religious Variable	Total	Male	Female
Feel close to God	-0.46	-0.40	-0.59
Describe yourself as religious	-0.65	-0.61	-0.70
Often attend religious services	-0.45	-0.41	-0.53
Often take part in church activities	-0.72	-0.73	-0.63
Often pray	-0.51	-0.47	-0.57
Believe in religious miracles	-0.47	-0.42	-0.54
Believe in life after death	-0.68	-0.61	-0.82
Believe that course of our lives is decided by God	-0.28	-0.20	-0.48
Believe that we each make our own fate	0.51	0.53	0.43

Source: Merike Sisask, unpublished data.

lower by 10% compared with those of East Germany when assessing the secular statement "we each make our own fate." The findings were similar not only for Germany, but also for the all-European East-West division. Consequently, higher suicide rates and lower religiosity, on average, can be found in Eastern Europe in comparison with Western Europe.

4.4.6 Association between Religiosity and Attempted Suicides

Sisask *et al.* (2010) used 2002–3 data from the WHO SUPRE-MISS project[11] (i.e., data were from Estonia, India, Sri Lanka, the Islamic Republic of Iran, Brazil, Vietnam, and South Africa) to explore the relationship between religiosity, as measured in three dimensions (religious denomination, subjective religiosity, and organizational religiosity) and attempted suicide (see *Table 4.2*). The researchers found that religious denomination provided a protective effect against suicide only in Estonia; that subjective religiosity provided a protective effect in a greater number of countries (Brazil, Estonia, the Islamic Republic of Iran, and Sri Lanka); and that organizational religiosity provided a clear protective effect only in Brazil and the Islamic Republic of Iran. In South Africa, religious denomination and subjective religiosity were identified not as protective factors but as risks for attempted suicide. Consequently, subjective religiosity (considering oneself to be a religious person) in particular may serve as a protective factor against non-fatal suicidal behaviors in some cultures.

[11] A multisite intervention study on suicidal behaviors. For more information on the SUPRE program and the SUPRE-MISS project see
http://www.who.int/mental_health/prevention/suicide/supresuicideprevent/en/

Table 4.2. Summary of findings from the WHO SUPRE-MISS project on the association between three religiosity components and attempted suicide and whether the components confer protection, risk, or neither.

Country	Religious denomination	Subjective religiosity	Organizational religiosity
Estonia	Protective	Protective	Controversial results
India	Not calculable	Non-significant	Controversial results
Sri Lanka	Not calculable	Protective	Non-significant
Islamic Republic of Iran	Not calculable	Protective	Protective
Brazil	Non-significant	Protective	Protective
Vietnam	Non-significant	Non-significant	Controversial results
South Africa	Risk	Risk	Non-significant

Source: Adapted from Sisask *et al.*, 2010.

Summary

- Bertolote and Fleischmann (2010) demonstrated that religious context (i.e., prevalence of religion in a country) is a major cultural factor in the determination of suicide.
- Wasserman *et al.* (1998) showed that in the former USSR, regions with Christian backgrounds (i.e., the Baltic and Slavic States) had higher suicide rates than regions with other religious backgrounds. The impact of Christianity varied from country to country, however, and religion did not sufficiently explain all the observed regional differences (e.g., in Caucasia).
- Värnik *et al.* (2010) concluded that religious heritage does not explain the differences in suicide rates among the Baltic States and that the Baltic suicide paradox needs further research.
- Mäkinen (2007) found that religion exerted an ideological influence on suicide attitudes in Western Europe but not in most of Eastern Europe (except Poland).
- Unpublished ISSN data indicate that suicide rates in Europe correlate inversely with statements expressing religious inclination and positively with secular, self-centered statements; and that Eastern Europe has higher suicide rates and less religiosity than Western Europe.

- Sisask *et al.* (2010) demonstrated that subjective religiosity (i.e., considering oneself to be a religious person) may serve as a protective factor against suicide in some, but not all, countries.

Following Sisask's presentation, there was some discussion around the difficulty of studying religiosity, given the multidimensional nature of religion (some aspects of religiosity are spiritual, whereas others are social); the challenge of understanding what people mean when they say that they do not "believe"; and the overall difficulty of framing religiosity survey questions.

4.5 Alcohol Consumption as a Determinant of Suicidal Behavior[12]

Pridemore elaborated on three peer-reviewed scientific studies from Russia and Slovenia. The studies relied on different types of data and methods but nonetheless reached the same conclusion—that alcohol consumption is a significant determinant of suicidal behavior—and provided a solid evidence base for moving forward in developing suicide prevention policy around alcohol control. First, however, Pridemore elaborated on hazardous drinking and the mortality crisis in Russia in general.

4.5.1 The Russian Mortality Crisis

In Russia, based on data from WHO (1999) and Goskomstat (2001), while female life expectancy remained at a relatively constant 70–75 years between 1980 and 2006, male life expectancy at birth fluctuated, hovering around 60 years by 2005, which Pridemore described as "incredibly low for an industrialized nation." During that same period, it appears that not only were men at greater risk of premature mortality than women, so were working age individuals, a somewhat unexpected finding, given that the most vulnerable ages in times of economic crisis are usually the very young and the very old. Also, individuals with lower socioeconomic status appeared to be at greater risk than individuals in the middle-to-upper socioeconomic classes.

Early evidence suggested that, while violent mortality and other external causes of death certainly played key causal roles, alcohol appeared to be the main causal factor behind the fluctuating male mortality rates of the 1990s (Bobak *et al.*, 1999; Leon *et al.*, 1997; McKee, 1999). Alcohol was subsequently implicated in a wide range of causes of death, including cardiovascular mortality (Chenet *et al.*, 1998; Shkolnikov *et al.*, 2002), homicide (Pridemore, 2002), and suicide (Pridemore,

[12]This section summarizes information presented by William Alex Pridemore.

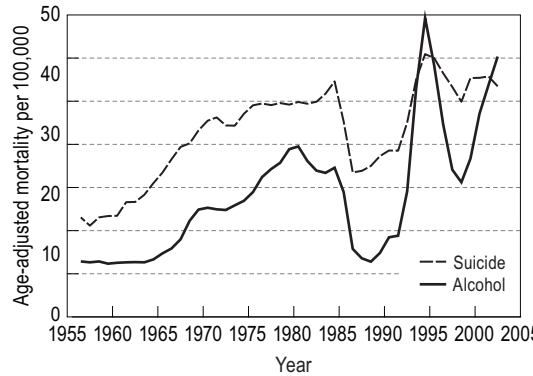

Figure 4.3. Annual and alcohol-related suicide mortality in Russia, 1956–2002. Source: Pridemore and Chamlin, 2006.

2006; Pridemore & Chamlin, 2006). Eventually, studies published in *The Lancet* finally pointed to alcohol as a key contributor to the so-called "Russian mortality crisis" of the 1990s (Leon *et al.*, 1997; Shkolnikov *et al.*, 2001) (see *Figure 4.3*). A more recent case-control study showed that 43% of premature mortality among working-age Russian males results from the direct effect of hazardous drinking alone (Leon *et al.*, 2007). If the Leon *et al.* (2007) findings can be extrapolated to Russia as a whole, that would amount to approximately 170,000 excess deaths annually resulting from alcohol consumption. Thus, hazardous drinking has had a devastating impact not just on suicide rates but on premature mortality in general in many parts of Eastern Europe.

Not only did hazardous drinking play an acute role in the Russian mortality crisis of the mid-1990s, alcohol consumption in Russia remains very high despite the growing political stability and improving economic conditions since that time. One recent estimate puts average alcohol consumption at 18 liters per person per year.

4.5.2 A Positive Association between Heavy Drinking and Suicide

(1) Cross-Sectional Findings from Russian Regions (Pridemore, 2006)

Russia has demonstrated high overall rates of alcohol consumption (approximately 15–18 liters per person per year) and suicide mortality (about 35–40 per 100,000 population per year). However, the high national rates mask considerable geographic variation. Regional suicide rates range from 7 (Dagestan) to nearly 100 (Altai Republic) per 100,000 population. In this study, Pridemore (2006) asked: Controlling for other structural factors that may be associated with suicide mortality, does the regional suicide rate co-vary with regional rates of heavy drinking?

Using Russian regions as the unit of analysis, age-standardized suicide mortality rate per 100,000 population as the dependent variable, age-standardized alcohol-poisoning mortality rate (a proxy for heavy drinking) as the independent variable, and controlling for a host of other variables (poverty, inequality, unemployment, single-parent households, education, polity, percentage urban, and Northern Caucasus), Pridemore (2006) conducted an ordinary least squares (OLS) and negative binomial regression to demonstrate the statistical significance of total alcohol consumption on suicide mortality in both males and females. The results show clearly that, controlling for many other factors associated with an increased risk for suicidal behavior, regions with higher levels of population-level drinking have higher levels of suicide mortality.

(2) Time Series Findings from Russia (Pridemore and Chamlin, 2006)

In contrast to the previous study, this study covered Russia as a whole, not regions, and employed time series rather than cross-sectional methods. Time-series methods are generally much more conservative in revealing relationships between two variables, so while the first study took advantage of regional variation, this one took advantage of variation over time. Suicide rates in Russia have ranged from a low of 16 per 100,000 in the mid- to late 1950s to over 40 per 100,000 in the mid-1990s. Pridemore and Chamlin (2006) asked: Are changes in annual suicide rates associated with changes in heavy drinking levels?

Using the Russian-year as the unit of analysis, the age-standardized suicide mortality rate per 100,000 population as the dependent variable, and the age-standardized alcohol poisoning mortality rate per 100,000 population as the independent variable, Pridemore and Chamlin (2006) used autoregressive integrated moving average techniques (ARIMA) to demonstrate a significant positive correlation between population-level drinking and population-level suicide rates for females, males, and overall. Again, the findings are clear and consistent.

(3) Interrupted Time Series from Slovenia (Pridemore and Snowden, 2009)

While the first study took advantage of geographic variation and the second, variation over time, this study took advantage of a national experiment: the introduction of a new national alcohol policy in Slovenia. Pridemore commented on the many opportunities to take advantage of this type of national experiment (i.e., the introduction of new policies). He observed that not only are methods available, but the methods are conservative in showing an association. Slovenia has one of the highest alcohol consumption rates in Europe (i.e., $>$14 liters per person per year) and annual suicide mortality rates of around 30 per 100,000 population overall and 50 per 100,000 among men.

Recognizing the significance of alcohol-related harm (i.e., not just suicide, but harm in general), for several years there was a push for a new alcohol policy. Finally, a new national alcohol policy was adopted in January 2003 and went into effect in March of that year. The main goal of the policy was to reduce alcohol-related harm by restricting alcohol availability by several means, including the establishment of a minimum drinking age and limiting where and when alcoholic beverages could be purchased.

Pridemore and Snowden (2009) used monthly overall and gender-specific suicide counts for the entire country from January 1997 through December 2005, which came to 74 pre-intervention and 34 post-intervention observations, and interrupted time-series analysis (ARIMA) to estimate the impact of the new national alcohol policy on suicide mortality. The researchers considered three possible outcomes: (1) an immediate impact and permanent drop in the suicide rate ("step"); (2) a gradual impact, with a drop in the suicide rate occurring later ("gradual"); or (3) an immediate impact, with an immediate drop, followed by an increase to baseline level ("pulse"). They found no impact on either female or overall suicide rates. However, there was a decrease of about 3 1/2 suicides per month for males, representing an impact of roughly 10%; this translates into the prevention of approximately 40 male suicides per year as a result of this particular policy. Thus, the outcome for males followed the "step" functional form of a time-series analysis (i.e., an immediate and permanent drop in the suicide rate).

4.5.3 Summary of Findings

Together, these three studies, which utilized different data sets and methods, strongly suggest that there is a population-level association between drinking and suicide. Pridemore commented on the importance of influencing alcohol supply and demand at the population level through federal and local policies and public health campaigns. (Influencing supply can be achieved by restricting when, where, and to whom alcohol can be served, as was done in Slovenia). He cautioned, however, that a population-level association between alcohol consumption and suicide mortality does not mean that other equally important individual, familial, cultural (e.g., "value of life" and what people drink), or other effects should not be considered.

Following Pridemore's presentation, a comment was made about how alcohol policies (e.g., Sweden's alcohol policy, which involves taxing alcohol purchases and requiring that alcohol be sold only by state-run shops) cannot prevent alcohol from being smuggled into countries by organized crime, nor do alcohol policies address the prevalence of illegal brewing/distilling (e.g., in Russia). It is not clear how these challenges can and should be addressed.

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[13]This bibliography was compiled from presentations and papers submitted by workshop participants. Some, but not all, of the references are cited in the main text.

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5

Suicide Prevention Policies and Programs: Accomplishments and Gaps

Conference participants discussed a wide range of effective evidence-based suicide prevention interventions, all of which could potentially be implemented in Eastern Europe.[1] This chapter summarizes the discussion. The dialogue had three overarching themes: (1) *the importance of socially based prevention interventions* (i.e., as opposed to, or in addition to, medically based interventions); (2) *the importance of implementing a multilevel approach to suicide prevention*; and (3) *the need for more research on effective suicide prevention measures*, so that appropriately targeted interventions can be developed and implemented. There was lively discussion on the need for comparative international research to test the effectiveness of various interventions in different political, cultural, social, and economic environments.[2]

Most suicide prevention interventions fall under two general approaches. The more traditional health care approach to suicide prevention (also known as the "medical model") involves increasing access and improving the quality of health services for individuals at high risk of suicide. The public health approach to suicide prevention involves implementing suicide prevention strategies aimed at the population as a whole and is premised on the importance of reaching all at-risk individuals, including the many who are not accessing health services. Danuta Wasserman stressed the importance of combining health care and public health approaches to suicide prevention and described a wide range of evidence-based interventions from both camps.

5.1 Health Care Approach to Suicide Prevention: What Works?

While there was a decidedly greater emphasis during the Tallinn conference on socially based suicide prevention measures (i.e., a public health approach), the more traditional health care model nonetheless continues to play a critical role in suicide

[1] See also Wasserman D and Wasserman C (eds.) (2009). *Oxford Textbook of Suicidology and Suicide Prevention: A Global Perspective* (ISBN: 978-0-19-857005-9).

[2] This section is based largely on information presented by Danuta Wasserman at the Tallinn conference.

prevention. This is especially true given the prevalence of psychiatric diagnoses among suicide attempters, including mood, substance-related, and other disorders (Wasserman *et al.*, 2011). Health care suicide prevention strategies known to be effective based on empirical research include the use of antidepressants to treat depression, treatment with lithium, and treatment of schizophrenia; psychotherapy; the training of general practitioners; continuity of care by the same provider; follow-up care; healthcare provider attitudes; and hotline services (a combined health care/public health approach) (Fawcett, 2009, Möller, 2009, Rudd *et al.*, 2009, Stanley & Brodsky, 2009). It should be noted that medical aspects were covered only briefly and incompletely, and the views on the effectiveness of medical interventions are divided; indeed, antidepressants have been associated with an increased suicide risk among young people in some studies.

5.1.1 Antidepressant Treatment for Depression

There are a multitude of studies on the effectiveness of using antidepressants to treat depression in order to reduce suicidal thoughts, suicide attempts, and completed suicides among individuals aged 24–65 (e.g., Stone *et al.*, 2009; Barak *et al.*, 2006; Möller, 2009; Brent, 2009). For younger individuals, there is also evidence to suggest that combining antidepressants with other suicide prevention strategies, such as psychotherapy (e.g., family therapy and therapies that stimulate learning and the development of verbal capacity) and active follow-up (e.g., monitoring of side effects) is effective.

Following Wasserman's presentation, a question was raised about the impact of the increased use of antidepressants in countries where their use was formerly limited (e.g., Ukraine). There was also some discussion around whether the smuggling of more affordable antidepressants (e.g., in Poland, smuggled antidepressants are 3–4 times cheaper than prescription antidepressants), the purchase of antidepressants over the Internet, and the prevalence of counterfeit drugs are factors that need to be considered when evaluating the potential impact of widespread antidepressant use on suicidal behavior. No answers were provided.

5.1.2 Lithium Treatment

There is very good evidence on the effectiveness of lithium treatment as a suicide prevention strategy. Möller (2009) showed that the suicide attempt rate was 10 times lower among patients treated with lithium than among those who were untreated and that the rate of completed suicides was almost 20 times lower among patients treated with lithium than among the untreated. Ohgami *et al.* (2009) examined lithium levels in tap water in 18 municipalities in Japan and detected a significant negative association between lithium levels and suicide mortality rates.

The researchers concluded that even low levels of lithium in drinking water may play a role in reducing suicide risk in the general population.

5.1.3 Treatment of Schizophrenia

Several studies show that treating schizophrenia with some of the newer neuroleptic drugs (antipsychotics such as clozapine) decreases attempted and completed suicide rates among individuals with psychotic disorders (Meltzer *et al.*, 2003; Hennen & Baldessarini, 2005; Pompili *et al.*, 2008; Tiihonen *et al*., 2009).

5.1.4 Psychotherapy

There is a great deal of evidence to suggest that cognitive behavioral therapy (CBT) is an effective suicide prevention strategy for adults (Tarrier *et al.*, 2008) and some evidence to suggest that dialectical behavioral therapy (DBT) is effective at reducing attempted suicides among adults (Linehan *et al.,* 2006). Unfortunately, CBT is not widely practiced in Europe. There is very little evidence on the effectiveness of psychotherapy in reducing suicidal behavior among adolescents (Stanley & Brodsky, 2009).

5.1.5 Suicide Prevention Education: Training of General Practitioners

Several studies from educational programs for general practitioners in Sweden ("The Götland Study"), Estonia ("The Estonian Study"), Hungary ("The Hungarian Study"), and Germany ("The German [Nuremburg] Study") have shown that training general practitioners: increases antidepressant treatment, decreases anxiolytic treatment, decreases the need for hospital care, and reduces suicide rates in females but not males. For example, Szántó *et al.* (2007) showed that a general practitioner-based intervention for the treatment of depression resulted in a greater decline in suicide rates compared with surrounding county and national rates. Moreover, and unexpectedly, the researchers also found a relationship between untreated alcohol dependency and increased male suicide risk, providing indirect evidence of the importance of treatment for alcohol dependency as a suicide prevention strategy.

5.1.6 Continuity of Care by the Same Caregiver

Established in the mid-1980s, the WHO European Multicentre Study on Suicidal Behaviour monitored suicide trends for nearly 21 years through a collaborative, coordinated, multinational project with up to 26 participating centers. The project provided unprecedented information on suicide attempters in Europe (e.g., Schmidtke, 1996). In 2007, it joined forces with the WHO European Network on

Suicide Research and Prevention to form a new project known as the European Multicentre Study on Suicide and Suicide Prevention, or MONSUE. Over time, the multicenter study has shown that preventing suicide attempts depends to some extent on receiving treatment from the same caregiver. Unfortunately, the continuity of care for suicide attempters is poor in many European countries, with a high percentage of suicide attempters having up to 20 contacts with different caregivers in five or more different treatment facilities.

5.1.7 Leaving the Care Setting: A Critical Point in Care

Leaving the care setting is a critical point in care for suicide attempters, with patients often discharged without clear follow-up plans. In Sweden, where all cases of attempted suicide must be scrutinized after discharge, data stored in the discharge register have shown that many subsequent suicides are among attempters who do not receive appropriate follow-up.

In 1999, WHO launched the worldwide initiative for suicide prevention, SUPRE. The program not only provides a wealth of resources on suicide prevention (e.g., for general practitioners, media professionals, teachers and other school personnel, prison staff, police, and other first responders), but it also sponsored a randomized control trial on the follow-up of 1,867 suicide attempters across five countries (Brazil, India, Sri Lanka, the Islamic Republic of Iran, China) (Fleischmann *et al.*, 2008). Patients were randomized into "treatment as usual" ($n = 945$) or "treatment as usual, plus brief intervention and contact" ($n = 922$). The brief intervention and contact involved one-hour individual information sessions after suicide attempts; and nine follow-up contacts after discharge (phone calls or visits) at 1,2, 4, 7, and 11 weeks and 4, 6, 12, and 18 months. The information sessions were conducted by individuals with clinical experience (e.g., physician, nurse, psychologist). The primary outcome measure was suicide at 18-month follow-up. There were significantly more suicides in the treatment-as-usual group (18 suicides, representing 2.2% of the population in question) than in the intervention group (2 suicides, representing 0.2% of the population in question). The results of the study suggest that brief, low-cost intervention may be an important part of suicide prevention programs for both under-resourced low- and middle-income countries and developed countries alike.

5.1.8 Health Care Provider Attitude

Given that attempted suicides are an important risk factor for future suicides, health care professionals' attitudes about which suicide attempters should receive treatment may also be an important risk factor. As part of MONSUE (see above), data collected on attitudes among health care personnel toward suicide attempters

showed that in the Nordic countries, all girls but not all boys who attempted suicide received treatment. In Italy, Spain, Switzerland, and Germany, the opposite was true, so even in the European region, there are significant differences in attitude about who should receive treatment.

Wasserman stressed the importance of improving attitudes among health care providers, especially psychiatric clinical workers, and modifying negative attitudes toward suicidal patients. She also commented on the need to improve the workplace climate and upgrade the professional status of psychiatric clinical workers. Negative attitudes keep practitioners from using evidence-based methods for suicide prevention (Ramberg & Wasserman, 2004).

5.1.9 Tele-Check/Tele-Help (a combined health care/public health approach)

There is good evidence suggesting that Tele-Check/Tele-Help strategies are effective at reducing suicidal behavior among the elderly (e.g., De Leo *et al.*, 2002, Krysinska & De Leo, 2007). Tele-Check/Tele-Help strategies, which provide at-risk individuals with regular, interpersonal telephone contact with a nurse or someone else who is familiar with the individual's situation (i.e., someone will call the individual on a regular basis—for example twice a week— to see how he or she is doing; and there is always someone available if the individual needs to call).

5.2 Public Health Approach to Suicide Prevention: What Works?

Like medical interventions, several public health interventions have demonstrated effectiveness in reducing suicidal behavior. These include media reporting, restrictions on alcohol consumption, and restricting the means of suicide ("closing the exits"). The evidence base for each of these interventions is summarized below.

5.2.1 Media Reporting

Wasserman commented on the role of media reporting as an extremely important source of information on suicide prevention and coping strategies in particular (e.g., Sisask *et al.*, 2005; Westerlund & Wasserman, 2009).

5.2.2 Restrictions on Alcohol Consumption

As summarized in Chapter 4, Pridemore described evidence showing a clear correlation between alcohol consumption and suicidal behavior. He also described evidence showing a clear beneficial effect of alcohol restrictions on the suicide rate

in at least one national alcohol control policy (Slovenia's). As summarized in Chapter 2, Razvodovsky described evidence showing a clear correlation between alcohol consumption and suicide in Belarus and a clear decrease in alcohol-related suicides during the 1984–6 anti-alcohol campaign. Furthermore, Wasserman referred to the anti-alcohol campaign of the *perestroika* period of the former USSR as a "natural experiment" that showed the dramatic effect that restricting alcohol consumption can have—not just in Belarus but regionally. For example, in Estonia, Wasserman and Värnik (1998) found that suicides among men decreased by 40% from 1984 to 1986–1988, with the greatest decrease occurring among working men aged 24–54. Värnik *et al.* (1998) reported that suicide rates fell in all 15 republics of the former USSR. During the same period, male suicide rates across Europe decreased by only 3.0%. Alcohol restrictions and changes in attitude toward alcohol consumption during *perestroika* led to a decrease not just in suicide but also in deaths from undetermined causes (either accidental or intentional), homicides, cardiovascular disease, respiratory diseases, accidental alcohol poisoning, and violent death from external injuries (Leon *et al.*, 1997).

There was another Soviet anti-alcohol campaign, this time in Estonia, from 1985 through 1988. Värnik *et al.* (2007) examined a total of 5,054 measurements of blood alcohol concentration (BAC) at the time of suicide before (1981–84), during (1986–88), and after the campaign (1989–92). The researchers found that during the intervention period, BAC-positive suicides decreased by 39.2% for males and 41.4% for females.

5.2.3 "Closing the Exits": Restricting the Means of Suicide

Several studies have demonstrated that "closing the exits" (i.e., restricting the means of suicide) can reduce suicidal behavior. Studies show that limiting the availability of toxic medications (Simkin *et al.*, 2005), gun control (Leenaars *et al.*, 2003), pesticide control (Gunnel *et al.*, 2007), and placing safety barriers on bridges (Beautrais *et al.*, 2009) can all reduce suicidal behavior.

5.3 Suicide Prevention in Adolescents

Wasserman described two ongoing studies on suicide prevention interventions among adolescents being coordinated by NASP (National Prevention of Suicide and Mental Ill-Health) at the Karolinska Institute, Stockholm, Sweden: (1) SEYLE and (2) WE-STAY.

5.3.1 Saving and Empowering Young Lives in Europe: A Study of Three Suicide Prevention Interventions

The Saving and Empowering Young Lives in Europe (SEYLE) cooperative project, funded by the European Union Seventh Framework Programme under the theme of health, is using psychological, cultural, and anthropological baseline data to test the effects of three different types of suicide prevention interventions: (1) empowering professionals to screen at-risk students; (2) empowering teachers and school staff by giving them the tools to recognize students at risk; and (3) empowering students by giving them a wellness manual so that they can develop an understanding of healthy behavior (Wasserman *et al.*, 2010).

At the time of the Tallinn conference, baseline data had been collected on 9,000 students, for a total of nearly 3 million observations. Preliminary data suggest that emergency cases are much more common than expected (4–6%) and that a large number of students are at risk (45–55%). Major determinants of risk are anxiety, depression, substance abuse, and exposure to the media and Internet.

5.3.2 WE-STAY: Preventing Truancy in Schools

A new project, WE-STAY, is aimed at evaluating the effect of three different school-based interventions on reducing truancy and improving mental health among adolescents: (1) "Truancy Aware" (raising awareness among students, school, and families about seeking psychological support and treatment; (2) "Truancy Screen" (professional screening aimed at early identification of psychological distress and mental health problems and referral to professional treatment); (3) "Combined Intervention" (using both truancy-aware and truancy-screen methods). These three interventions are being compared to a control intervention (advocating parental and school control, such as communicating by e-mail or phone).

5.4 The World Health Organization (WHO) and Suicide Prevention[3]

Suicide prevention is one of 12 key strategic actions in the WHO Mental Health Action Plan for Europe[4] and is a key component of the WHO Mental Health Declaration, signed and endorsed on behalf of the ministers of health of the 52 Member

[3]This section is based largely on information presented by Kristian Wahlbeck during the Tallinn conference.

[4]The Action Plan "proposes ways and means of developing, implementing and reinforcing comprehensive mental health policies in the countries of the WHO European Region" in 12 action areas. Each member country is expected to develop its own strategies accordingly. One of the 12 action areas is "prevent mental health problems and suicides." Actions to consider include: targeting groups at risk, offering prevention programs based on their specific needs and sensitive to their background

States of the WHO European Region in 2005, to give impetus to the development of mental health care in the region.

5.4.1 The Importance of Social Protection: Socioeconomic Factors that Protect against Suicide

Up until Wahlbeck's presentation, with the exception of discussion around the potential protective effect of religiosity, much of the conference focused on socioeconomic factors that increase, not decrease, the risk of suicidal behavior. Religiosity aside, Wahlbeck emphasized that not all socioeconomic factors known to be associated with suicide mortality rates confer risk. Some, such as welfare protection, confer protection. He said, "Suicide prevention is not just about reducing risk factors. It is also about mental health promotion and increasing protective factors."

The importance of suicide protective factors is especially apparent during times of economic hardship, when suicide rates, particularly male suicide rates, tend to climb. Research has shown that, during times of economic crisis, effective policy can alleviate the macroeconomic impact on the suicide rate. Active labor market programs, social protection programs, alcohol control measures, debt relief programs, the provision of primary care, and other government policy responses can all mitigate the impact on suicide of the higher unemployment, greater financial problems, and lack of public services that tend to accompany economic crises (Stuckler *et al.*, 2009). The more a country invests in social protection, the smaller the association between unemployment and the suicide rate (see *Figure 5.1*). The same data show that higher unemployment has a greater effect on suicide rates in East European countries than West European countries, an association that is likely related to the fact that social protection policies (e.g., unemployment expenditure) are not as well developed in the former as they are in the latter. Moreover, evidence suggests that not only do social protection investments reduce suicide mortality rates, they may do so more than investment in health care. Social welfare expenditure[5] has also been associated with a decrease in all-cause mortality (Stuckler *et al.*, 2010).

Differences in the unemployment–suicide association between Sweden and Spain exemplify the impact of social welfare spending (see *Figure 5.2*). Spain's

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and culture; establishing self-help groups, setting up telephone help-lines and websites to reduce suicide, particularly targeting high-risk groups; establishing policies that reduce the availability of the means to commit suicide; setting up, in partnership with other ministers, evidence-based education programs addressing suicide for young people at schools and universities and getting role models and young people involved in developing campaigns; raising awareness among staff employed in health care and related sectors about their own attitudes and prejudices toward suicide. For a full list of the proposed actions, see the Action Plan, which is readily available on the Internet (WHO European Ministerial Conference on Mental Health 2005).

[5]That is, social welfare spending based on Organisation for Economic Cooperation and Development (OECD) measurements and excluding health care expenditures.

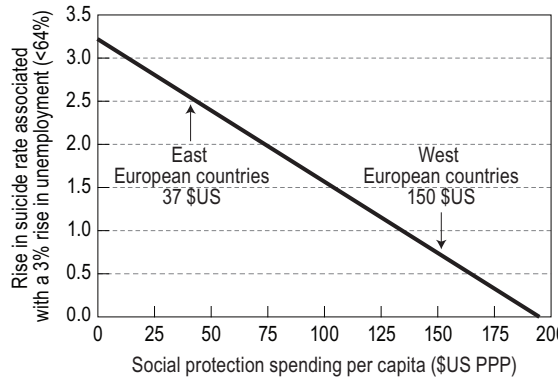

Figure 5.1. The effect of social protection spending on the association between unemployment and suicide. Source: Stuckler *et al.*, 2009.

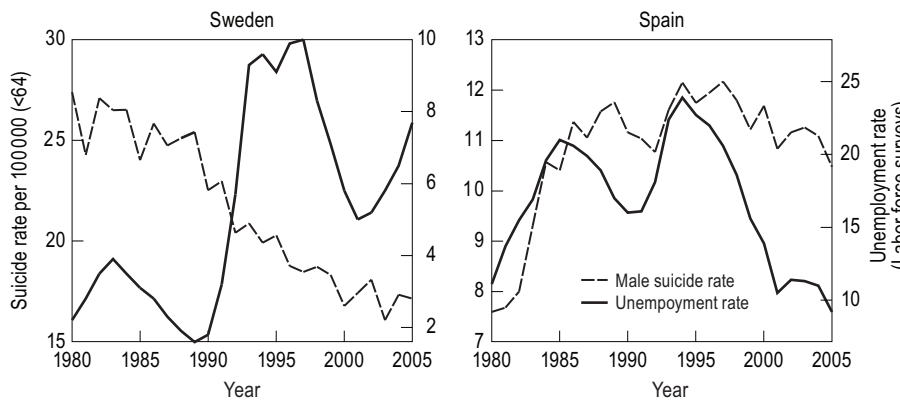

Figure 5.2. The impact of social welfare spending on suicide rates in Sweden vs. Spain. Source: WHO Regional Office for Europe, 2011.

social welfare system is not as well developed as Sweden's, with average labor market protection (i.e., unemployment benefits) of only $88 per capita compared to Sweden's $362. In Spain, rising unemployment in the 1980s and 1990s was followed by a rising national male suicide rate. In Sweden, on the other hand, despite an increase in unemployment in the 1990s, the male suicide rate steadily declined.

5.4.2 The Multisectoral Nature of Effective Suicide Prevention

Wahlbeck remarked that because of the multidimensional nature of suicidal behavior and the complexity of the determinants of suicide, many of the more suc-

cessful suicide prevention programs worldwide are based on comprehensive, multilevel approaches. For example, the Nuremberg Alliance for Depression, a program launched in 2001 as part of the German Research Network on Depression and Suicidality,[6] led to a 30% drop in the suicide rate after two years of multilevel interventions that included training sessions and practice support for primary care physicians, public relations activities and mass media campaigns, training sessions for community facilitators who work with depressed and suicidal individuals, and helplines and other outreach and support for high-risk groups (Hegerl *et al.*, 2010). For a U.S.-based example, Wahlbeck pointed to a 5-year school-based suicide prevention program covering more than 300,000 children and adolescents that resulted in a 63% reduction in the suicide rate (Zenere and Lazarus, 1997). The multilevel intervention included implementation of a school suicide prevention policy, teacher training and consultation, parent education, stress management and a life skills curriculum for students, and the establishment of a crisis team in each school. As another U.S.-based example, Wahlbeck pointed to a large-scale, multilayered U.S. Air Force suicide prevention program that led to a 33% reduction in the relative risk of suicide (Knox *et al.*, 2003). The multilevel intervention included removing the stigma associated with seeking help for a mental health problem, improving understanding of mental health, and changing policies and social norms.

5.4.3 The Multilevel Nature of Alcohol Control as a Suicide Prevention Measure

As the evidence summarized in earlier chapters attests (e.g., see the summary of Pridemore's presentation in Chapter 4), alcohol consumption clearly plays a significant role in suicide risk, especially in men. Moreover, restricting alcohol consumption can reduce suicide risk. Following Wahlbeck's talk, there was some discussion around the fact that reducing alcohol consumption is a multilevel effort in and of itself. For example, the Gorbachev administration's alcohol policy operated on several levels and included alcohol restrictions, a campaign to change societal attitudes toward alcohol, and the rehabilitation/detention of heavy drinkers.

The argument was put forth that because alcohol is a market product and, as such, is subject to the forces of supply and demand, alcohol control policies should consider both sides of the equation. On the supply side, in addition to taxation, another option to consider is restricting "in all possible ways" the sale of alcohol to minors. On the demand side, a shift in attitude could have a significant impact. For example, choosing a glass of red wine over a glass of vodka or not engaging in binge drinking are attitude shifts that could make a difference in alcohol consumption and the risk of suicide.

[6] http://www.kompetenznetz-depression.de/ (Hegerl *et al.*, 2010).

5.4.4 Means of Suicide Vary from Country to Country: Implications for Prevention

Wahlbeck stressed the importance of restricting access to suicide means aligned with national suicide means patterns. As described in Chapter 2, common means of suicide vary from country to country, with suicides in some countries occurring predominantly by hanging and in others by firearms, pesticide poisoning, etc. Restricting access to one means of suicide does not necessarily lead to more suicides by another means, because most suicidal persons tend to have a preference for a particular method (Daigle, 2005).

5.4.5 Six Key Evidence-based Actions Needed for Suicide Prevention

Recognizing that suicide rates are influenced by a wide range of social and public health determinants (see Chapters 2–4), Kristian Wahlbeck identified six key evidence-based actions to reduce suicide mortality that extend across multiple sectors of public policy:

1. *Addressing suicide rates in strategic frameworks*. Recommended actions include developing an intersectoral policy framework (i.e., including not just the health sector but also the education, child and family, labor, and public safety sectors) and appointing a national cross-sectoral public health committee to address suicide mortality (Wahlbeck, 2009); setting meaningful numerical targets for suicide reduction as a way to focus attention on suicide prevention (Gunnell *et al.*, 2000); reducing access to suicide means (Hawton *et al.*, 2009); mandating mental health impact assessments as a way of engaging health agencies in the suicide prevention policy-making process and sharpening the focus of interdepartmental policy-making in health (van Herten *et al.*, 2001); and communicating the message that suicide prevention is cost-effective (Appleby *et al.*, 2000).

2. *Continued efforts to develop accessible community-based mental health services*. Recommended actions include shifting resources from institutional care to community mental health care according to the WHO Mental Health Action Plan for Europe guidelines, based on evidence linking community-based mental health services to lower suicide rates than traditional hospital-based services (Pirkola *et al.*, 2009).

3. *Development of social protection, debt support, and debt relief programs*. Recommended actions include targeting social protection interventions to address priority needs among the most vulnerable populations, providing a high level of coverage to the poorest populations, and supporting at-risk families. These recommendations are based on evidence from the previously cited

Stuckler *et al.* (2009) study, which concluded that annual welfare spending of $190 per capita should be sufficient to prevent an increase in the suicide rate with higher unemployment, in addition to other studies showing that, during times of economic crisis, strong social safety nets are associated with smaller changes in population-level mental health (Uutela, 2010) and that strong social protection prevents health inequalities from widening (Hintikka *et al.*, 2001).

4. *Restrictions on access to alcohol*. Based on a wealth of evidence linking excessive alcohol use to suicide and the effectiveness of alcohol-regulation policies on alcohol-related harm (e.g., see Chapter 4) and citing Anderson and Baumberg (2006), Wahlbeck stated, "Promotion of a healthful lifestyle and avoidance of harmful drinking are cornerstones in the promotion of good mental health and the prevention of suicides." He did not elaborate on specific recommended actions.

5. *Child, family, and education policies to support healthy development*. Recommended actions include providing parenting support (e.g., national family support programs that provide parental and maternity leave and help with children's expenses) and good-quality day care. The previously cited Stuckler *et al.* (2009) study showed that, in EU countries, each US$100 per capita per year of spending on family support programs reduced the effect of unemployment on suicides by 0.2%. Other studies have demonstrated links between "good" parenting (and "holistic" pre-school and school education programs) and the mental health of children. For example, Weich *et al.* (2009) demonstrated a link between parental emotional unavailability and adolescent suicide attempts.

6. *Responsible media coverage of suicides*. Based on plentiful evidence showing that sensationalized reporting of suicides leads to "copy-cat" suicides and that responsible reporting, on the other hand, reduces them, particularly among adolescents, the recommended actions include promoting responsible media coverage (Hawton & Williams, 2001; Niederkrotenthaler & Sonneck, 2007; Sonneck *et al.*, 1994).

5.5 Suicide Prevention in Hungary: More on the Importance of Social Protection[7]

At the end of his presentation on psychosocial factors associated with suicidal ideation and suicide attempts (see Chapter 4), Székely commented on the role of "social capital" in suicide prevention and the very important role of community programs in strengthening social capital. He remarked that this is especially true in Hungary, particularly in the poorer regions of the country where people are very open to helping others. However, even in Hungary, community programs are challenged by the reality that civil society needs guidance. Without guidance, because of Hungary's history of autocracy, civic organizations have a hard time moving forward. Székely advocated the creation of a community forum so that civic organizations can share information and learn from each other. He identified the European Alliance Against Depression (EAAD) and OSPI-Europe as models of successful community programs.

When asked to define social capital, Székely replied that there is no concrete definition. The concept encompasses all of the different questions/factors explored in the surveys that he described during his presentation (e.g., social connection; social support received from family, partners, children, and churches). If anything, he said, social capital is a measure of how well individuals work together.

When asked whether Hungary's social capital has improved over the past 20 years, Székely said that, yes, it has definitely improved. There was no civil society at all in the early 1990s, as the few civic organizations that did exist were governed from the top. Today, there are many self-governing civic organizations. Still, the country has a long way to go, with many organizations working in isolation.

5.6 Practitioner's Perspective: A Successful Local Nongovernmental Organization (NGO) Suicide Prevention Program[8]

The Crisis Program for Children and Youth, an NGO in Tallinn, Estonia, was founded in 1994 in response to the need for some structure to alleviate the trauma caused by the Estonia ferry disaster, which involved more than 800 deaths and affected nearly every Estonian family. As Riis said, everyone knew someone who knew someone who was killed. Because there was little knowledge in Estonia at the time about crisis work, the program adopted lessons learned from existing Scandinavian, U.S., and other programs, such as Save the Children Sweden. Since its

[7] This section is based on remarks made by András Székely at the end of his presentation, the bulk of which is summarized in Chapter 4.

[8] This section summarizes information presented by Maire Riis at the Tallinn conference.

inception, the program has provided long-term bereavement intervention following several other disasters involving the death of family members, including the Palu school-bus accident, the Pärnu methanol catastrophe, the Hiiumaa plane accident, a boating accident and traffic accidents in Ruhnu, and various other disease-, suicide-, and homicide-related tragedies. Today, the Crisis Program for Children and Youth is the only NGO in Estonia with concentrated knowledge of and experience with grief and trauma among children and youth.

Riis explained that the program's main function is to provide long-term intervention in grief support for children and teenagers who have lost a close family member. The program has three major components:

- *Acute crisis intervention for schools and other children's institutions, as well as communities, after a tragedy*. Riis emphasized the importance of crisis intervention work following tragedy as a means of preventing further tragedy and the need for more work in this area, especially in schools. Many teenagers attempt or complete suicides following tragedies. She remarked on the phenomenon of "suicide contagion." For example, after a classmate has committed a suicide, many children indicate that they have had thoughts of suicide but not the courage to do what their "brave" classmate had done. The Crisis Program for Children and Youth provides a one-year follow-up grief support program for all at-risk youth, when possible (see below).

- *Guidance and information to bereaved families after a traumatic event*. There are often questions about what kind of information to give children (e.g., whether the death was an accident or not).

- *Teaching in civic institutions and universities; and sponsoring seminars on crisis response, grief, and trauma*.

5.6.1 The Grief Support Program

To date, approximately 600 children have participated in the program's one-year grief support program. The program has five phases. Riis described in detail the first three phases (network interview, assessment, rehabilitation) but did not elaborate on the final two phases of the program (evaluation and referral).

Network Interview

This phase of the intervention involves gathering information when traumatic events involving children occur (e.g., information about the child's support system, ability of the child or children to cope). Usually, the program conducts a family interview in cooperation with a local specialist who has already been in contact with

the bereaved family. After the initial interview, the program continues to work in cooperation with the at-risk child's support system (e.g., teacher, family physician, relative).

Pre-assessment

Assessment involves a lengthy pre-assessment of the child's stability (e.g., risk of displaying suicidal behaviors, history of juvenile offenses) to identify high-risk children. This typically involves conducting a structured parent-and-child interview (i.e., questions about the circumstances surrounding the death, earlier traumatic experiences, medical history, school performance, acting out/behavior, availability of family/social support, substance abuse, violence in the family, poverty, communication skills in the family); gathering self-reported measures from both the affected child and the child's parents to get a sense of the severity of the impact of the event (see below); and conducting an interview with a local specialist or someone from the child's support system (e.g., teacher, family physician or psychiatrist, social worker, psychologist).

Riis commented on how self-reported measures about a child's feelings, thoughts, and behavior often differ markedly between the at-risk child and his or her parents. She emphasized the importance of gathering information directly from the child. Examples of the types of self-reported measures collected for children include "I worry too much," "I'm withdrawn," "I cry a lot," "I'm sad," "I have angry outbursts," "I blame myself for his/her death," "I blame somebody else for his/her death," "I talk or think about dying," "I say or think that life is meaningless," "I'm afraid something bad will also happen to other members of my family," and "I keep my worries to myself." Parents are asked similar questions but also about the impact of the event on the child.

Riis also commented on the value of pre-assessment in establishing trust with the traumatized family. Trust is key in motivating families to actively participate in other components of the grief support program and to seek help.

Rehabilitation

Because of limited access to services, the program operates in a camp setting. It accommodates 40–45 children annually. The experience involves an 8-day summer camp and two 3-day follow-ups—one in the fall and one in the spring. The children are divided into five age groups, with each group facilitated by two group leaders. The camp environment mixes grief support work with child-friendly fun, play, and relaxation, with a wide range of creative activities aimed at helping children express themselves in different ways and improve their self-esteem (e.g., concerts,

painting and music workshops, outdoor games, and other physical development and teambuilding activities).

The rehabilitation work is based on and inspired by the work of Dr. Atle Dyregrov at Bergen Crisis Psychology Centre (Norway); Lotta Polfeldt and Göran Gyllensward at the Crisis Centre for Children in Rädda Barnen (Sweden); Soili Poijula, a trauma therapist (Finland); Margareta Thun, an expressive arts therapist (Finland); Sandra Wielend, child trauma psychotherapist (Canada); Reet Oras, psychotherapist and Eye Movement Desensitization Reprocessing (EMDR) child trainer, Uppsala University Hospital (Sweden); and Marge Heegard, William Worden, Ben Wolf, Nancy B. Webb and other American specialists. Methods include grief therapy for both individuals and groups; trauma therapy (e.g., EMDR); psychoeducation (i.e., specialized according to cause of death); parent guidance; expressive arts therapy; and rituals. Riis noted that with respect to psychoeducation, different causes of death require different types of explanations/help. For example, children traumatized by suicide often wonder what role they played in the family member's death. Together, these various methods allow the children to interact with each other in a safe setting; share difficult feelings and thoughts associated with loss in an age-appropriate way; receive emotional support; develop affect tolerance, relaxation, and other healthy coping skills; and improve self-understanding.

Riis shared some comments from children who have participated in the camps: "I've expressed myself here knowing that the people who are listening understand me. I guess that without this camp I would have been very bitter and withdrawn today, but that's not the case now. This camp has helped me a lot" (Anu, 15). "It's great to be here where you can express yourself freely and don't need to keep your thoughts and feelings inside. There should be more camps like this" (Kaarel, 16). "It helps you get over the grief" (Karl, 7).

The rehabilitation phase of the program's one-year grief support program also involves arranging family meetings across Estonia, giving bereaved families opportunities to meet and provide support to each other and learn about grief from program specialists.

5.7 Suicide Through a Social Lens: Implications for Prevention

As discussed in Chapter 1, an overarching theme of the Tallinn conference was the critical need to view suicide and suicide prevention through a social lens, even as new and exciting advances in the medical genetics of suicidal behavior come to the fore. The medical/genetic and social study of suicide can and should complement one another, as even the best-studied genetically based human behaviors are

socially dependent. A genetic makeup that confers susceptibility to a particular suicidal behavior in one social environment does not necessarily confer that same risk in another. Moreover, whether suicidal risk is genetically based or not, medically based interventions prevent only a small proportion of suicides, as most suicidents are not reachable through the health care system. For example, in Ukraine, as Pylyagina stated, "While medical help is available within the psychiatric system, suicides among mental health patients account for only 2.2% of suicides. Even if 2.2% is an underestimate, clearly the majority of individuals at risk for suicide do not need psychiatric help and are therefore not receiving any specialized suicide prevention care."

Mäkinen suggested that a major reason why there are so few large-scale social suicide prevention programs in Eastern Europe is a lack of clarity around the social determinants of suicide. Even for determinants well covered in the scientific literature (e.g., alcohol consumption, unemployment, social change), there are large gaps in knowledge, particularly with respect to their relative importance in different political, socioeconomic, and cultural environments. Mäkinen's call for more comparative research was echoed repeatedly throughout the course of the conference and emerged as one, if not the most important, of the overarching themes of the two-day dialogue.

The research imperative is two-fold. Not only are there significant gaps in knowledge around which social determinants are important under what circumstances, there are equally (arguably more) significant gaps in knowledge around which social interventions are most effective under what circumstances.

Importantly, although the evidence base for social suicide prevention interventions is insufficient, as Wasserman stated, it does exist. She emphasized the important role of alcohol in suicidal behavior in Eastern Europe, particularly among men, and the growing evidence base indicating that restrictions on alcohol consumption can have dramatic effects (e.g., see the Chapter 4 summary of Pridemore's presentation on the impact of alcohol restriction on suicidal behavior).

When developing suicide prevention policies and programs, it is important to bear in mind that completed suicides are only one type of self-destructive behavior. Pylyagina, for example, remarked on the fact that while there were 45 completed suicides in Kiev in 2005, there were 1,102 suicide attempts. As Wahlbeck pointed out, nonfatal self harm is estimated to be 10–40 times more common than actual suicide (Schmidtke *et al.*, 2004). Suicide attempters require considerable in-patient treatment, a factor that needs to be considered when evaluating the potential impact of various interventions.

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6

Next Steps for the Scientific Community: Research and Data Needs for Designing Effective Suicide Prevention Strategies

While research on the association between social factors and suicide has a century-long history, the evidence base is far from complete. This is true even for the most- and longest-studied social factors (e.g., religiosity, social change). In the final session of the Tallinn conference, conference participants focused their discussion on two key goals: (1) Identify key gaps in the scientific evidence base on the social and public health determinants of suicide that, if filled, would strengthen the foundation for designing effective suicide prevention policies and programs. (2) Discuss ways to fill those gaps. This chapter summarizes that discussion. The first portion of the session revolved around general methodologic challenges that cut across all areas of suicidology research, such as the need for more comparative and multidisciplinary research. The remainder of the discussion addressed the research and data needs for five major social and public health determinants of suicidal behavior: alcohol, religion, social change, unemployment, and depression.

6.1 Some General Approaches for Moving Forward

Several suggestions were made for improving the general approach to planning and conducting future suicide determinant and prevention research and developing evidence-based policies from the results of that research. This section summarizes those suggestions. Importantly, the recommendations do not reflect a consensus and were not reached through any formal process. Rather, they are the opinions of individual conference participants.

There is an urgent need for a more comparative approach to understanding suicide determinants and evaluating the effectiveness of implemented suicide prevention policies in various economic, social, and cultural environments. The international network of suicidology researchers should be expanded to include greater representation from the East European, CIS, and Baltic countries.

As discussed in Chapter 2, variation in suicide trends among the East European, CIS, and Baltic countries points to the need for additional comparative studies to

more clearly identify which factors contribute to suicide mortality and under what circumstances. The issue was brought to the fore following Székely's presentation on psychosocial risk factors associated with suicidal behavior in Hungary. As described in greater detail in Chapter 4, Székely and colleagues conducted surveys in 1995 and 2002 in order to better understand exactly what aspect of social transformation and the introduction of a market economy following independence from the former Soviet Union led to an increase in suicidal behavior across Eastern Europe. The researchers identified the six social factors most closely associated with suicidal ideation and suicide attempts: inadaptive ways of coping (e.g., alcohol and drug abuse); family problems; little social support; hostility/anomie/no purpose in life; depression; and low educational level/unemployment. The question remains, are these risk factors unique to Hungary or do they reflect general trends across Eastern Europe?

In addition to a greater focus on comparative study, or as part of that focus, there was some additional discussion during the final session around the need for improved methodologies. In particular, it would be helpful to have a common set of research instruments that all researchers could use to conduct comparable analyses and a common database for all countries to access. Even now, with the wealth of epidemiological findings already available, which were described at length in Chapters 2–4, there is a need to collate the available data as a first step toward discerning whether observed country-level trends are regional patterns.

As discussed in Chapter 5, there is also an urgent need for more comparative research on the effectiveness of implemented suicide prevention policies to better understand which interventions work under what circumstances. While Wasserman advocated the adoption of evidence-based interventions across Eastern Europe even if the evidence for effectiveness comes from studies conducted elsewhere, Wahlbeck cautioned that research findings from studies conducted in the United States or Western Europe are not always transferable.

Even within countries, comparative research is lacking. For example, as mentioned in Chapter 2, there have been no evidence-based assessments of any prevention programs whatsoever in Lithuania. It is difficult to know which, if any, of the handful of implemented prevention efforts have actually contributed to the recent decline in suicide mortality in Lithuania.

The field of suicidology would benefit from a more multi-disciplinary approach, with contributions from historians, economists, anthropologists, professionals from civic organizations, and other experts spanning a wide range of relevant (nonmedical) expertise.

Most suicide prevention research is premised on the assumption that suicide is a medical, not a public health, challenge. For example, as Wasserman pointed out during her presentation (see Chapter 5), there is strong evidence that antidepressant treatment for depression and clozapine treatment for schizophrenia are effective

modes of suicide prevention. However, as Pyliagina and others observed, the majority of suicidents are individuals who do not seek or receive mental health care. Effective suicide prevention on a large scale requires a more thorough understanding of the full spectrum of suicide determinants, including all of the various social and public health risk (and protective) factors explored in this report. Achieving that understanding requires, in turn, a multidisciplinary approach—one that involves sociologists, historians, anthropologists, economists, and other scholars, as well as professionals with expertise in the work of civil society organizations, in addition to the traditional cadre of psychiatric and other medical researchers. Wahlbeck remarked, "Suicide and depression researchers need to form multidisciplinary coalitions and networks on national and international levels to provide the full picture of suicide determinants and possible actions to prevent suicides."

6.2 A Role for Historians

Historians, for example, could help to tease apart some of the longer trends in suicide mortality over time. For their presentations in Tallinn, country profile presenters (i.e., individuals whose presentations are summarized in Chapter 2) were asked to consider trends over the past 30 years. Historical data from Russia and Hungary suggest, however, that it may be useful to understand some significant changes in suicide mortality that have occurred in the distant past.

6.3 A Role for Economists

Economists could contribute to the field of suicidology in several ways. For example, tobacco and alcohol control research conducted in the United States suggests that changing the price of alcohol can have a significant impact on consumption—for example, with heavy drinkers less likely than moderate-to-light drinkers to respond to price increases and with many people substituting homebrew for legal alcohol purchases. A better economic understanding of how price changes impact behavior could help to fine-tune alcohol control policy. Furthermore, there is an urgent need for costing studies of various suicide prevention interventions. For example, how much does it cost to deliver suicide prevention services to the prison population or to a group of unemployed individuals? What are the direct costs of suicide vs. attempted suicide for the medical system and the indirect costs for society in terms of lost production and years of life lost? The field of suicidology would also benefit from economic impact studies of both completed and attempted suicides. For example, which is costlier: a suicide intervention program or the combined direct and indirect effect of attempted and completed suicides otherwise preventable by the intervention?

Addressing the economic implications of suicidal behaviors and suicide prevention interventions is a particularly effective way to approach policymakers, as one of the ultimate policy imperatives is to deal with situations of great fiscal/budgetary constraint. It was suggested that adding an economic component to the type of epidemiological research discussed during this conference would be relatively straightforward and would make for great graduate research, as well as more advanced research.

It would be helpful to identify specific target groups when examining the relationship between social/public health factors and suicidal behavior

As described in Chapter 4, Jüri Allik used evidence on associations between happiness/neuroticism and suicide to demonstrate that observations in large-scale general population studies are often the opposite of what would be found in more targeted studies of at-risk individuals. It was suggested that it may be useful to identify specific target groups when examining suicide determinants. For example, when examining the relationship between alcohol and suicide, it might be helpful to examine alcohol and suicide in migrant populations rather than in the population as a whole. Or when examining depression and suicide, it would perhaps be helpful to examine depression and suicide among ethnic minorities rather than in the population as a whole.

It is important to explore individual-, as well as group-level, factors when exploring associations between social/public health factors and suicidal behavior

Most of the evidence discussed at the Tallinn conference was based on aggregate- or group-level variables. It was suggested that such "cell-based" research be complemented with more individual-level studies. For example, it might be helpful to clinically follow individuals who have attempted suicide. Recognizing that there are some significant ethical and legal challenges to conducting such research, opportunities nonetheless exist within those constraints. For example, Pridemore mentioned longitudinal studies currently underway in the United States and suggested that there may be opportunities to conduct similar research in Eastern Europe.

When discussing suicidal behavior, it is important to differentiate between completed and attempted suicides

There was some discussion around the need for clarity around the difference between completed and attempted suicides. While it is generally easier to collect data on attempted suicides, those data are just that—data on attempted, not completed, suicides. For example, data on alcohol consumption, religiosity, and other coping behaviors among suicide attempters cannot necessarily be extrapolated to make

inferences about coping behaviors associated with completed suicides. Separate studies on completed suicides are needed.

There is a need to determine which evidence is most relevant to suicide prevention policy

A great deal of data was presented at the Tallinn conference. It was not always clear which data or trends were immediately relevant from a policy standpoint. For example, one participant remarked that when listening to the discussion on the connection between suicide and religion, it was not immediately clear which specific areas of research and pieces of evidence would be most helpful for policymakers to have in hand. The research agenda needs to be prioritized with respect to which pieces of evidence would be most helpful for developing new suicide prevention policy.

Data reliability issues need to be resolved

Data reliability, especially with regard to cause of death, is of concern in some countries. In some cases, suicide rates might be 50% higher than the data would indicate. For example, as previously mentioned, William Pridemore questioned the validity of data used to demonstrate the recent decline in suicide mortality in Russia.

Is there a genetic basis to suicide risk?

While the focus of the Tallinn conference was on the social and public health determinants of suicide, the potential relevance of a genetic basis to suicidal behavior was alluded to several times during the two-day dialogue. In particular, there is evidence to suggest that some men may be genetically predisposed to perceiving low stress as high stress and may therefore be more vulnerable to depression and/or suicide during times of economic crisis. While the role of genetic vulnerability in depression and/or suicide is still a hypothesis, Wasserman remarked that the evidence that does exist is very thought-provoking and worthy of further exploration (Wasserman *et al.*, 2010 and Wasserman *et al.*, 2008).

6.4 Alcohol Consumption

In the final session of the conference, alcohol consumption was identified by conference participants as one of the most important areas of suicidology research. As Pridemore clearly illustrated (see Chapter 4), it is a significant determinant of suicidal behavior. As summarized in Chapter 3, Värnik argued that alcohol

consumption may explain some of the gender differential in suicide mortality. Razvodovsky mentioned several studies that reported high proportions of blood-alcohol-concentration (BAC)-positive suicides, with one of them concluding that 61% of all male suicides were BAC-positive. In addition, several aggregate-level studies in Belarus have shown high correlations between alcohol consumption and suicide rates, with one study correlating a one-liter change in per capita consumption with a 7.4% increase in the male suicide rate. As Wasserman discussed (see Chapter 5), and as Pridemore, Razvodovsky, and Värnik mentioned, there is also a strong evidence base for alcohol control as an effective suicide prevention measure. However, as is true of all suicide determinants and prevention policies, the evidence base is far from complete. During the final session, participants identified two major gaps in the data: (1) the fiscal implications of alcohol control; and (2) the causal mechanisms linking alcohol consumption and suicide. Participants also identified research methodology issues in need of attention.

6.4.1 Is Alcohol Control Cost Effective?

It was suggested that because alcohol restriction is often viewed as a costly measure, it would be helpful to demonstrate (through research) that it can also save money (i.e., by reducing not just attempted and completed suicides but all alcohol-related morbidity and mortality) and that it may be cost-effective at the national and/or international levels.

6.4.2 The Need for More Research

There was some discussion around the link between alcohol consumption and depression and the need to better understand the precise mechanism that turns alcohol consumption from a coping behavior, or form of self-medication, into what one participant described as “self-murder.”

6.4.3 Methodological Challenges

Revisiting earlier discussion about the need to develop a set of common research instruments so that results from different studies can be more readily compared, a remark was made about the fact that alcohol-related deaths are often measured differently in different studies and that it is not always clear when deaths are alcohol-related.

6.5 Religiosity

Like alcohol consumption, religion/religiosity and its association with suicidal behavior came up repeatedly during the course of the two-day conference dialogue. However, unlike alcohol consumption, the association between religion/religiosity and suicide is unclear. As Sisask described during her presentation (see Chapter 4), most research findings on the association between religiosity and suicidal behavior have demonstrated an inverse relationship, with religiosity conferring a protective effect and reducing suicide risk. However, there have been notable exceptions. Some evidence shows the opposite. Religiosity is an extraordinarily difficult factor to measure, in large part because of its multidimensional nature. Confounding the problem is the fact that it is often difficult, if not impossible, to compare results from different studies because of variations in study design and target group(s), the suicidal behaviors being evaluated (e.g., some studies examine attempted suicides, whereas others examine suicidal ideation), and the components of religiosity examined. The lack of clarity around the religiosity–suicide connection sparked some conversation around the need for more precise research tools and methodologies and the need to prioritize which research questions are most relevant to suicide prevention policy.

6.5.1 Religiosity as a Coping Behavior

There was a great deal of discussion around religiosity as a constructive, or adaptive, coping behavior for dealing with stressful situations, in contrast to alcohol consumption, which is a pathological, or self-destructive, coping behavior. A potentially fruitful area of research would be to consider whether and how adaptive vs. self-destructive coping behaviors vary among cultures or countries, as well as by sex and age, and the policy implications of that variation. For example, is there a way to substitute for the pleasure that alcohol provides? Are there social settings, or rituals, that could provide pleasurable relief without harm? Under what circumstance does religion provide that pleasure? Even in the same cultural environment, religion can be protective for those who view God as benevolent but a risk for those who view God as punishing. Again, it was suggested that new tools and methodologies may be needed for studying the connection between religion and suicide. Subjective differences in how individuals view God, etc., make it very difficult to evaluate religion as a determinant of suicidal behavior.

6.6 Social Change

One of the greatest cross-cutting themes in many of the presentations was the dramatic impact that the socioeconomic transformation of the post-Soviet era had on

suicide rates across Eastern Europe, the CIS, and the Baltic States. Many of the conference participants whose presentations are summarized in Chapter 2 noted country-specific suicide mortality trends in sync with major socioeconomic events during that period. For example, as Kalėdienė described, after the launch of political and economic reforms in Lithuania in 1989, life changed dramatically for much of the Lithuanian population. The highest-ever reported suicide rate for men occurred in 1994 (87.7 per 100,000) and the highest for women in 1995 (15 per 100,000). Even in Poland, which is not considered a high-suicide-rate country (the mean suicide rate for 2000–2008 was 15.2 per 100,000 population), as Brodniak explained, suicide rates over the past several decades have been markedly affected by social change.

6.6.1 The Need for More Research

What is it about social change that drives suicidal behavior? Värnik and others speculated on the reasons why upper-middle-aged men in Eastern Europe appear to be more susceptible to social change. However, hard data are lacking. As previously mentioned, while Székely used data from Hungary in an attempt to identify precisely what it is about social change that leads to suicidal behavior, many unanswered questions remain about the applicability of the findings outside of Hungary.

The need for more research on how people cope with uncertainty and unpredictability

It was suggested that uncertainty and unpredictability (i.e., in one's life) are subject to measurement and may be useful phenomena to study. For example, under what circumstances are uncertainty and unpredictability acceptable? Are there personality types that are more or less capable of coping with uncertainty and unpredictability? This suggestion led to a remark that some individuals and groups of people may be more, or less, capable of adapting to social change than others. For example, social exclusion may be a risk factor for not coping well with social change. Additionally, education probably has a great deal to do with how well individuals adapt to new situations.

The need to study how people feel about their post-transition situation and the extent to which perception of their current situation is affected by the media

There is a difference between social change and the perception of social change, with many people's feeling about their post-social change situation being affected by the media. For example, people may feel worse about their "life situation" when bombarded with advertising and other images of things that they cannot have.

The need for research on changes in "the value of life" during times of social transition

Revisiting earlier discussion around the need for more comparative study, there was some discussion around the need to conduct multicountry comparisons of changes in "the value of life" during times of social transition. There is also a need for common tools or methods for measuring "the value of life."

6.7 Unemployment

Not only is unemployment in and of itself a risk factor for suicidal behavior, so is the discrepancy between employment/professional status and educational level (see summary of Gilinskiy's presentation in Chapter 4). As Yur'yeva discussed, employment status also appears to play an important role in the growing divergence between rural and urban suicide rates, with suicide rates in urban populations higher among the unemployed and rates in rural populations higher among the employed. As described in Chapter 3, Yur'yeva's presentation led to some interesting discussion around the concept of rurality and whether rural-urban differences are manifestations of other underlying risk factors, such as employment status. But how can those underlying risk factors be identified?

6.7.1 The Need for More Research

As with religiosity and social change, there was considerable discussion around the need to tease apart the different components of unemployment and identify precisely what it is about unemployment that precipitates suicide. Is it the shock of unemployment (i.e., the grief and disappointment associated with losing one's job)? Or is it the long-term nature of unemployment? How do attitudes about unemployment vary, and what role do those attitudes play in conferring risk? At the population level, how important is the growth (not just the level) of unemployment in conferring risk? The connection between unemployment and suicide needs a better assessment both across space and over time.

The need to evaluate the cost-effectiveness of unemployment-related suicide prevention

There was some discussion around the fact that it is unrealistic to think that eliminating unemployment will eliminate unemployment-related suicidal behavior. Suicidologists need to think more systematically about how to prevent unemployment-related suicides—for example by providing support to unemployed people who are

at risk of suicide. As part of that systematic thinking, it would be prudent to assess which unemployment-related suicide prevention actions are cost-effective.

Variation in unemployment and the need to tighten the definition of unemployment

Participants also reflected on the fact that there are different types of unemployment, some unemployed persons having plentiful resources despite not having a job (e.g., money in the bank, income generated through the black market). The concept of unemployment needs to be tightened so that unemployment-related determinants of suicidal behavior can be more clearly identified and effective prevention policies developed.

6.8 Depression

Finally, conference participants considered the need to better understand how depression is causally linked with social determinants of suicidal behavior. There were some comments about the fact that depression is often a result of some other underlying factor, such as unemployment, that if addressed, would eliminate the depression.

There was also some discussion around the need for population-level studies that evaluate the cost-effectiveness of psychotherapy vs. the administration of antidepressants. As Wasserman pointed out during her presentation (see Chapter 5), there is a strong evidence base for the effectiveness of both psychotherapy and antidepressant administration as suicide prevention measures. However, as with so many suicide prevention measures, little information is available on their comparative cost-effectiveness.

6.9 Conclusion

The main objectives of the Tallinn conference were to consider the available evidence linking suicide to various social and public health factors and identify gaps in the evidence base. Conference participants presented, discussed, and debated two major types of evidence: (1) data on associations between social/public health factors and suicidal behavior, mostly at the country-level but also at the regional level; and (2) data on the effectiveness of already-implemented suicide prevention policies.

While suicidologists have been gathering data on the association between social factors and suicide for more than a century, the evidence base is far from complete. As previously elaborated in Chapter 4 and elsewhere, this is true even for

the most- and longest-studied social factors (e.g., religiosity, social change). It is especially true of the countries of Eastern Europe, the CIS, and the Baltic region. As Airi Värnik stated during her introductory remarks, even after 20 years of intensive research on suicide trends in the former Soviet states, there are countless more questions than answers, in part because statistical data on population and suicide mortality were kept secret in the former USSR. Not until 1988, during the Gorbachev reform era and at the height of *perestroika* were statistical data on suicide made accessible to researchers. Even then, the historical database is far from complete, as is the post-USSR database. Filling the gaps in the evidence base is critical to knowing where and how to intervene and developing effective suicide prevention policy.

Equally important are data on the effectiveness of already-implemented suicide prevention policies. In some cases, for example, Lithuania no in-depth studies have been conducted to assess which, if any, of the multitude of recently introduced policies have contributed to the recent downward trend in the country's suicide mortality rates. There is also a need for more comparative analyses of implemented suicide prevention policies, as not all policies will necessarily be effective in all socioeconomic, cultural, or other environments. From a policymaker perspective, there is also an urgent need to consider not just health outcomes but the fiscal implications of different interventions as well.

While the questions seem endless and the suicidology research agenda vast, there are several evidence-based suicide prevention interventions available for adoption in Eastern Europe, the Baltic States, and the CIS. As discussed in Chapter 5, some interventions are based on a health-care approach, others on a public-health approach, and still others on a combination of the two. The health-care approach involves identifying at-risk individuals and providing the appropriate prevention services (e.g., offering rehabilitation for suicide attempters, providing antidepressant treatment to people suffering from depression). The public-health approach involves implementing larger-scale interventions that target the general population. Public health measures range from stigma reduction (i.e., reducing the stigma associated with seeking help for mental health problems) to alcohol restriction. As both Wasserman and Wahlbeck elaborated, there is no single "best" way to prevent suicide. Many of the most effective suicide prevention programs contain both a health-care and public-health approach and involve a combination of interventions. Still, the key question remains: which interventions are most effective under what circumstances? There is an urgent need to expand the suicidology evidence base through comparative international studies. Involving suicide researchers from Eastern Europe, the CIS, and the Baltic States in this effort would be enormously valuable.

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Appendix A

Scientific Program

Monday, September 13, 2010	
19:00	**Welcome reception, Nordic Hotel Forum, Restaurant: "Monaco"**
Tuesday, September 14, 2010	
08:15–08:45	**Registration and Reception**
08:45–09:00	**Welcome and overview of conference** **Dr. Landis MacKellar,** International Institute for Applied Systems Analysis, Vienna, Austria **Prof. Ilkka Henrik Mäkinen,** Stockholm Centre on Health of Societies in Transition, Södertörn University, Sweden **Prof. Airi Värnik,** Estonian-Swedish Mental Health and Suicidology Institute and Tallinn University, Tallinn, Estonia
	Session I. COUNTRY **The Scope of Suicide as a Public Health Crisis in Eastern Europe, the CIS, and the Baltic Countries** **Chairs:** **Dr. Landis MacKellar,** International Institute for Applied Systems Analysis, Austria **Prof. Kristian Wahlbeck,** World Health Organization Regional Office for Europe, Copenhagen, Denmark
9:00–09:35	**Society and Suicide Mortality in Eastern Europe - an Overview** **Prof. Ilkka Henrik Mäkinen,** Stockholm Centre on Health of Societies in Transition, Södertörn University, Sweden
9:35–10:00	**Geographic overview:** **Estonia, Latvia** **Dr. Luule Sakkeus,** Estonian Institute of Demography, Tallinn University, Estonia **Mr. Peeter Värnik,** Estonian-Swedish Mental Health and Suicidology Institute, Estonia **Prof. Juris Krumins,** University of Latvia, Riga, Latvia

10:00–10:25	**Coffee break**
10:25–11:30	**Geographic overview (continued)** **Lithuania, Russia, Belarus, Ukraine, Poland, Hungary** **Prof. Ramunė Kalėdienė**, Kaunas University of Medicine, Kaunas, Lithuania **Dr. Alexander Nemtsov**, Moscow Research Institute of Psychiatry, Russian Federal Ministry of Public Health, Moscow, Russia **Prof. Yury Razvodovsky**, Grodno State Medical University, Grodno, Belarus **Prof. Galyna Pyliagina**,National Medical Academy of Post Graduate Education named after P. L. Shupyk, Kiev, Ukraine **Dr. Włodzimierz A. Brodniak**, Institute of Psychiatry and Neurology, Warsaw, Poland **Dr. Katalin Kovács**, Hungarian Central Statistical Office, Demographic Research Institute, Budapest, Hungary
11:30–12:30	**Discussion**
12:30–14:00	**Lunch**
12:45–13:15	**Press Conference**
	Session II. RISK GROUPS **High-Risk Groups and Patterns in Suicide Rates in Eastern Europe, the CIS, and the Baltic Countries** **Chairs:** **Prof. Ilkka Henrik Mäkinen**, Stockholm Centre on Health of Societies in Transition, Södertörn University, Sweden **Prof. Juris Krumins**, University of Latvia, Riga, Latvia
14:00–14:25	**Social and Public Health Determinants of Suicide in the WHO European Region** **Prof. Kristian Wahlbeck**, WHO Regional Office for Europe, Copenhagen, Denmark
14:25–14:50	**Gender, age, and suicide** **Prof. Airi Värnik**, Estonian-Swedish Mental Health and Suicidology Institute and Tallinn University, Estonia

14:50–15:15	**Rural-urban Patterns in Suicide Rates** **Prof. Lyudmyla Yur'yeva,** Dnepropetrovsk State Medical Academy, Ukraine
15:15–16:00	**Discussion**
16:00–16:30	**Energy break**
	Session III a. SOCIAL FACTORS **Social Factors Influencing Suicide in Eastern Europe, the CIS, and the Baltic Countries: Social, Cultural, Economic, and Behavioral** **Chairs:** **Prof. Airi Värnik,** Estonian-Swedish Mental Health and Suicidology Institute and Tallinn University **Prof. William Pridemore,** Department of Criminal Justice, Indiana University, USA
16:30–16:55	**Culture, Attitudes, and Suicide** **Prof. Jüri Allik,** University of Tartu, Tartu, Estonia
16:55–17:20	**Socioeconomic Status and Suicide** **Prof. Yakov Gilinskiy,** St. Petersburg Juridical Institute of the Academy of General Prosecutor's Office RF, State University of Education, St. Petersburg, Russia
17:20–17:50	**Discussion**
19:00	**Dinner. Restaurant: "Platz" (Roseni 7)**
Wednesday, September 15, 2010	
	Session III b. SOCIAL FACTORS **Social Factors Influencing Suicide in Eastern Europe, the CIS, and the Baltic Countries: Social, Cultural, Economic, and Behavioral** **Chairs:** **Prof. Airi Värnik,** Estonian-Swedish Mental Health and Suicidology Institute and Tallinn University **Dr. Alexander Nemtsov,** Moscow Research Institute of Psychiatry, Russian Federal Ministry of Public Health

8:30–8:55	**Social Change, Civil Society, and Suicide** **Mr. András Székely**, Semmelweis University, Budapest, Hungary
8:55–9:20	**Religion and Suicide** **Ms. Merike Sisask**, Estonian-Swedish Mental Health and Suicidology Institute, Estonia
9.20–9:45	**The Ecological Association between Alcohol and Suicide in Eastern Europe: Evidence from Russia & Slovenia** **Prof. William Pridemore**, Department of Criminal Justice, Indiana University, USA
9:45–10.15	Discussion
10:15–10:35	**Coffee break**
	Session IV. PREVENTION **Suicide Prevention in Eastern Europe, the CIS, and the Baltic Countries: A Policy Perspective** **Chairs:** **Prof. Ilkka Henrik Mäkinen,** Stockholm Centre on Health of Societies in Transition, Södertörn University, Sweden **Dr. Ivi Normet**, Estonian Ministry of Social Affairs, Tallinn, Estonia
10:35–11:00	**Evidence-based Actions for Preventing Suicidal Behavior in Eastern Europe, the Commonwealth of Independent States, and the Baltic Countries** **Prof. Danuta Wasserman**, NASP, Karolinska Institute, Stockholm, Sweden
11:00–11:15	**Practitioner Perspective: Local NGO with Success in Suicide Prevention** **Ms. Maire Riis**, *Crisis Program for Children and Youth, Tallinn, Estonia*
11:15–11:45	**Policymaker Perspectives, Accomplishments, and Gaps** Potential topics to address: ➢ Regional interventions ➢ Global initiatives ➢ Networks ➢ Success stories ➢ Surveillance and data systems for measuring suicide rates

	➢ Mental health programs ➢ Programs for the prevention of substance abuse ➢ Reducing access to lethal means ➢ Access to health care ➢ Support for help-seeking behavior ➢ Bonds with family and society ➢ Life skills: problem solving, settlement of disputes, conflict resolution ➢ Cultural and religious beliefs ➢ Community institutions and intervention centers ➢ Social policies on alcohol use, urbanization, pesticide use, social security and welfare, family laws
11:45–12:30	**General Discussion: How Does Research Translate into Prevention Policy?**
12:30–13:30	**Lunch**
	Session V. RESEARCH **Next Steps for the Scientific Community: Research and Data Needs** **Chairs:** **Dr. Landis MacKellar,** International Institute for Applied Systems Analysis, Austria **Prof. Danuta Wasserman,** NASP, Karolinska Institute, Stockholm, Sweden
13:30–15:00	Structured Discussion and Meeting Summary
15:00	**Closing Remarks** **Adjourn**

Appendix B

Speaker Biographies

Jüri Allik
Jüri Allik, PhD, is a professor of experimental psychology at the University of Tartu, Estonia, where he served as Dean of the Faculty of Social Sciences from 1996 to 2000. He has been Chair of the Estonian Science Foundation (2003–2009) and is a foreign member of the Finnish Academy of Science and Letters (1997). His primary field of research is visual psychophysics, especially the perception of visual motion. Dr. Allik's recent research, however, is more concentrated on personality, emotions, intelligence, and cross-cultural comparison. With Robert R. McCrae, he edited *The Five-Factor Model of Personality across Cultures* (Kluwer Academic/Plenum Publishers, 2002). Prof. Allik received a PhD from Moscow University (1976) and Tampere University, Finland (1991).

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Galyna Pyliagina is a Professor in the Department of Child, Social, and Forensic Psychiatry at the National Medical Academy of Postgraduate Education, in Kiev, Ukraine. The main focus of her professional and research activity is the diagnosis, treatment, and prevention of self-destructive behavior and the organization of suicidological services. She has 20 years of experience in clinical practice, 17 in scientific research, and 10 as a supervisor and professor of psychiatry and psychotherapy training. Her publications include *Basic concepts in suicidology* (1999), *Self-destructive behavior: pathways, clinical-typological aspects of diagnostics and treatment* (2004), *The problem of self-destructive behavior in Ukraine and ways to solve it* (2007), *Suicidigenesis: pathways of self-destructive behavior recurrence process* (2007).

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Maire Riis is the founder and Director of the Crisis Program for Children and Youth, a nongovernmental organization in Estonia. Since 1995, she and colleagues have developed the first group treatment program for bereaved children and youth in Estonia. Ms. Riis studied psychology at Tallinn University and is a certified gestaltpsychotherapist (Gestalt Institute in Scandinavia). She has had extensive training in psychotraumatology at the Finland Trauma Therapy Center and the Center for Crisis Psychology in Bergen. In 2007, she founded the Trauma Therapy and Training Center. Ms. Riis specializes in working with bereaved children, teenagers, and their families. She maintains a practice as a traumatherapist, supervisor, and facilitator certified by the Eye Movement Desensitization and Reprocessing (EMDR) Institute (USA) and the EMDR Europe Association. She lectures and consults on crisis intervention, grief, and trauma. She has served on the board of the European Society for Trauma and Dissociation (2006–2010).

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András Székely is an economist and a teacher of religion at the Institute of Behavioral Sciences of Semmelweis University, Budapest, Hungary, since 1999. He was involved in the Hungarostudy 2002 survey as a statistical cooperator, and in the Hungarostudy 2006 survey as a coordinator and statistical cooperator. His research interests focus on the psychology of religion and marital status. Since 2004, he has served as local coordinator of the Hungarian Alliance Against Depression (as part of the European Alliance Against Depression [EAAD] program) and Optimizing Suicide Prevention Programs and Their Implementation in Europe (OSPI-Europe). He is a member of the Semmelweis University–Hungarian Academy of Sciences Mental Health Research Group. In that position, he coordinated the Selye János Mental Health Program in Hungary, a government-funded program in which cognitive behavioral therapy training programs were organized throughout the country.

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Kristian Wahlbeck is a psychiatrist currently working as Senior Technical Officer in the mental health program of the WHO Regional Office for Europe. He is also linked with the National Institute for Health and Welfare (THL) in Finland, where he has worked as a Research Professor since 2002. He has expert advisory roles with the European Commission Directorate General for Health and Consumers and the Nordic Council of Ministers. He edited the European Commission Consensus Paper on Prevention of Depression and Suicide in 2008 and produced the background document for the European Commission Thematic Conference on Prevention of Depression and Suicide in December 2009. He has contributed to the national Finnish mental health and substance abuse policy, launched in 2009. Kristian Wahlbeck has published more than 70 original research reports.

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Danuta Wasserman is a Professor of Psychiatry and Suicidology at Karolinska Institutet in Stockholm, Sweden, Head of the National Swedish Prevention of Mental Ill-Health and Suicide at Karolinska Institutet (NASP), Honorary President of

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Appendix C

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