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## **Studies on mental health in Kurdistan - Iran**

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## **Abstract**

The aim of this thesis was to carry out an epidemiological study on mental health related issues in the Kurdish population of Iran. This part of Iran suffered directly during the Iran-Iraq war 1980-1988. Iran is an Islamic republic with strict adherence to Islamic traditions, which has implications for the way of life and gender issues. Suicide is prohibited according to Islamic teaching, but still there is a rather high suicide incidence especially among young women, who burn themselves to death. This thesis deals with mental health in general, the prevalence of post traumatic stress disorder and issues related to suicide.

In a cross-sectional study in Sanandaj, the capital of the province of Iranian Kurdistan, 1000 households were approached. One member of each household was asked to respond to the following internationally well-known questionnaires; General Health Questionnaire (GHQ12), Posttraumatic Stress Disorder Checklist (PCL), Life Events Check List (LEC), Beck Depression Inventory (BDI-II) and Attitude Toward Suicide (ATTS). PCL and LEC were translated to Farsi and their psychometric properties were studied. The other instruments have already been translated and used by other researchers in Iran.

About 27% of the subjects were found to suffer from mental distress according to GHQ-12. No gender differences were found. Unmarried and unemployed belong to the most afflicted. The participants in the investigation reported, not surprisingly, a low level of personal experiences of suicidal behaviour in their family. Females were more prone to believe that suicide is preventable compared to males.

A low number reported suicide attempts during the last year. Being married seemed to have a protective effect against suicide attempts for males but not for females. Suicide behaviour was not substantially related to PTSD, but to severe depression.

The idea that there is a continuity of suicidal behaviour from suicidal thoughts to suicide attempts was supported. Younger individuals more often reported thoughts of life weariness and those who reported suicide attempts were younger than individuals with no suicidal attempts. Females reported more death wishes than males during the last year and married women more often reported suicide attempts than men.

The prevalence of posttraumatic stress disorder was 10, 9% which is higher than reported in other countries, but still lower than expected. Women suffered significantly more often from PTSD than men. Women reported also more often re-experiencing and more arousal symptoms than men. The finding supported a good construct validity of PCL.

One major limitation of these studies is the fact that the sample was drawn from the population of the capital city of the province. So the finding cannot probably be generalized to Iranian Kurds from rural areas.

The sample also had a rather high educational level compared to the population of Sanandaj. To this should be added the fact that the instruments used are developed in the western culture, which might influence the way questions are perceived. So, the result should be interpreted with some caution.

The results, however, give indications that there are mental health problems of a magnitude that should be taken seriously.

**Key words:**

Kurdistan, Psychiatric epidemiology, General mental health, PTSD, Suicide,

“To Arad and Narin”

## Foreword

When I for more than two decades left Iran, Iranian Kurdistan was a “developing” region in a developing country. I was allowed to visit Iran after almost ten years: the river was the same but not the water: Kurdistan was still a developing region in a low income country although a dramatic change had taken place. After all, finding a coca cola can in the outskirts of a distant village in the highland of Kurdistan was a sign of globalisation that had reached this part of the globe as well.

The word globalization is frequently used to describe the process in which traditional boundaries of cultures are changing. Industrialisation, urbanisation and the power of media influence all aspects of cultures including health. The health care in developing countries is challenged by a number of considerable matters that involve all aspects of health including mental health. Population explosion, unplanned urbanization, lack of consistent data, shortage in referral system and culture- related issues are some of those concerns. On the other hand, it is fair to say that the general attitude towards mental health has been changing in developing and low income countries. A part of this development requires local surveys to contribute to the global health care matters in view of the fact that mental health often is under-represented in global health.

Iranian Kurdistan has since the revolution in Iran in 1979 and even long before the revolution been involved in several antagonisms. The civil war in Kurdistan 1980 was followed by the long- lasting war between Iran and Iraq. Because of its geographic location, the province was exposed, involved and affected during the war. Since the language, culture, history and religion of Kurdistan differ from the other parts of Iran, a sense of alienation is associated with this region. Consequently a slow development in different areas is a visible reality and the health care system in this region is not an exception. The present study is the first broad mental health survey in Iranian Kurdistan in an international collaboration.

Naser Mofidi

## List of original papers

The thesis is based upon the following five papers. Reprints of original papers were made with approval from publishers.

- I. Mofidi,N., Ghazinour,M., Araste,M., Jacobsson, L., Richter, J.(2008) General Mental Health, Quality of Life and Suicide Relate Attitudes among Kurdish People in Iran. *International Journal of Social Psychiatry*. Sep; 54(5):457-68.
- II. Mofidi,N., Ghazinour,M., Esmail-Nasab,N., Richter,J. Post Traumatic Stress Disorder in Kurdish Iranians. Manuscript.
- III. Mofidi,N., Ghazinour,M., Salander-Renberg, E., Richter, J. (2008) Attitudes towards Suicide among Kurdish people in Iran. *Social Psychiatry & Psychiatry Epidemiology*. Apr; 43(4):291-8.
- IV. Ghazinour,M., Richter,J., Mofidi,N. Continuity from suicidal ideations to suicide attempts in Iranian Kurds. Manuscript submitted.
- V. Mofidi,N., Ghazinour,M., Richter,J. How about the relationships between PTSD, depressivity and suicide related thoughts in Iranian Kurds? Manuscript.

## ABBREVIATION

ANNOVA	Analysis Of Variance
ATTS	Attitude Towards Suicide
BDI-II	Beck Depression Inventory- Second version
DSM	Diagnostic and Statistical Manual of Mental Disorder
GHQ	General Health Questionnaire
LEC	Life Events Check List
PCL- C	Posttraumatic Stress Disorder Checklist- Civilian version
PTSD	Posttraumatic Stress Disorder
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

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## Introduction

Studies of mental health are since World War II increasingly recognized as a significant area for countries wishing to improve their economic, social and human capital (WHO, 2004). This recognition of psychiatric epidemiology as an essential prerequisite to mental health policy is due to the development of diagnostic methods (Weissman et al, 1996; Weissman et al, 1994) since international psychiatric epidemiology has emphasized that mental disorders have greater effects on role functioning than many serious chronic physical illnesses (Kessler et al, 2001; Ormel et al, 1994; Wells, et al 1989).

Thus there is a new interest in the field of psychiatric epidemiology in developing and low income countries. The interest is motivated by specific situations, natural or community disasters and international attention (Murthy & Lakshminarayana, 2005). From another point of view mental health concerns are a lower priority in comparison with physical health needs in developing countries. The priority may be considered by Maslow's hierarchy of individual needs (Jacob, 2001). This verticality of health care priority tends to move mental health interests into the background to make room for physical health care reality. The priority can also be explained by the definition of the mental health concept. In various cultures depression and anxiety is not considered as mental illness. The stigma associated with mental disorders is an additional hindrance (Lauber & Rössler, 2007). These obstacles are in the first place related to delays in seeking appropriate care, however these factors also effect mental health surveys directly.

Apart from these aspects, there are other barriers such as socio-cultural factors that can limit the use of tools for a study and the interpretation of results. Some topics of research is difficult to conduct due to religious beliefs and social norms (e.g. questions about alcohol, drug abuse and sexual related questions in Islamic countries).

There is however also advantages in carrying out mental health research in developing countries. The most important is the possibility of the emergence of new information. One example is the longitudinal research on schizophrenia initiated in the 1970s as part of the WHO international pilot study of schizophrenia (Harrisson et al, 2001). Discovering differences in the outcome of mental health in developing and developed countries offers new perspectives on the role of socio-cultural factors in mental health. One other advantage is the relatively low cost of research in psychiatric epidemiology. Research with high quality can be undertaken with relatively small amounts of investment (Murthy & Lakshminarayana, 2005). Large-scale psychiatric surveys have also other advantages. It can generate new information in a defined geographic area about the existing services and can estimate the level of unmet needs and the services necessary to meet those needs (Jenkins, 2001). Valid information on the prevalence and associated risk factors of supposed causal importance allow etiological hypotheses to be produced. It will allow the hypothetic and hopefully practice models developed for prevention. By repeating community surveys, it is possible to monitor the health of the population and trends. Epidemiological findings emphasize the importance of mental health policy addressing the key role of primary care, the social circumstances and social consequences of a disorder (Jenkins, 2001).

## About Iran and Iranian Kurdistan

The Islamic Republic of Iran is located in the Middle East between the Caspian Sea and the Persian Gulf. Iran's total land area is 1.6 million square kilometres. Its total population in 2007 was about 64.4 million. The annual population growth rate is 1.41%. Of the total population, 60% are urban and 40% live in rural areas (Yasamy et al, 2001).

The ethnicity of the Iranian population is primarily Persian with over 51%. The second biggest group is Azeri 24% and the remaining portion of the population is Gilaki (8%), Kurds (7%), Arabs (3%) and other (7%). The majority of the Iranian population are Shi'a Muslims (89%) whilst 10% are Sunni Muslims and the remaining 1% are Christian, Zoroastrian, Baha'i and Jewish. Kurds are Predominantly Sunni Muslims.



*One aspect of the daily life of Kurds in Iran.*

Kurds are the fourth largest ethnic group in the Middle East, after the Arabs, Persians and Turks. The Kurdish minority population inhabit the region known as Kurdistan, an extensive plateau and mountain area in south west Asia (c.74,000 sq mi/191,660 sq km), including parts of eastern Turkey, north eastern Iraq, and north western Iran and smaller sections of north west Syria and Armenia. The region lies astride the Zagros Mountains in Iran and the eastern extension of the Taurus Mountains in Turkey and extends in the south across the Mesopotamian plain and includes the upper reaches of the Tigris and Euphrates rivers.



Kurdish is an Indo-European family of languages and has several dialects. The two Goorani (southern Kurdish) and Zaza (western Kurdish) dialects are quite different from Kormanji. The dialects spoken in Sanandaj, belongs to the Kormanji branch of the Kurdish language. Kurdish Iranian speaks, however, Persian, since it is the official language of Iran.

### ***Province of Kurdistan***

Kurdistan Province of Iran is a mountainous region that can be divided into two western and eastern sections from topographical points of view which are located in the east and west of Sanandaj.

Located at the north-western Iran, Sanandaj is the capital of the Iranian province of Kurdistan with 1, 55 million inhabitants and an area of 28,817 km<sup>2</sup>. About 52% of the population is urban dwellers and 48% of the population is living in the rural area of the province. The city of Sanandaj had an estimated population of 501, 277 in 2006. The population of Sanandaj is mainly Kurdish with an Armenian and Jewish minority. The major activities are agriculture and traditional and modern livestock farming. Wheat, barley, grains and fruits are the major agricultural products. The chemical, metal, textile, leather and food industries are the main industrial activities in this province.

Kurdistan Province was a centre of resistance to both the monarchy during the 1979 revolution and the republican government that followed. It was bombed by Iraq several times during the Iran-Iraq War (1980-1988).

The School system in Kurdistan is part of the national education system in Iran with 12 years to obtain high school diploma. There are two universities in Sanandaj. The first one is the

governmental university of Kurdistan including University of Medical Science. There is also a private University called Islamic Azad University of Sanandaj.



*View of Sanandaj with Islamic Azad University in front.*

## **Mental Health in Iran**

Mental health services in Iran started with mental hospitals in some of the large cities (Shadpour, 1994). In the 1940-ies departments of psychiatry were established in the university hospitals. Residency training in psychiatry was also initiated. In the 1970-ies community oriented mental health care was introduced by the Ministry of Health and Welfare (Yasamy et al, 2001). Epidemiologic research was encouraged and some new psychiatric hospitals were built. Psychiatric nursing training was also initiated. Integration of mental health in public health care was initiated in 1986. According to this model mental health care is integrated into the local primary health care system. The integrative health care is a widely promoted model of mental health care and prevention appropriate in many low-income countries. Some pilot studies evaluated the integration program in Iran and confirmed increased knowledge of health workers and improved skills in patient screening (Bagheri Yazdi, 2001; Mohit et al, 1998; Mohit, 1998; Shahmohammadi, 1990).

Despite the improvements that the integration program achieved on mental health in Iran, there are however, some considerations: 1- The Iranian society is rapidly growing and changing and it is reasonable that the priorities and guidelines should be revised (Yasamy et al, 2001). 2- The system seems to limit itself to case-finding and treatment of founded cases. 3- The mental health integration program is sensitively dependent on the referral system to be effective (Vikram & Cohen , 2003). Linking primary health care system and the strong private sector with psychiatry is an unmet need in Iran (Yasamy et al, 2001).4- The relatively low

levels of awareness about mental disorders implies that primary health care, is the single largest sector for mental health care in low and middle income countries. While this idea has been reported in international mental health policy for decades, a review by Cohen (Cohen, 2001) has found that there are precious few examples of the effective implementation of primary mental health care.

5-The Extensive urbanization in Iranian society during the last decades seems to make the program more appropriate in rural areas where health care centres and Behvarz (multipurpose health workers) meet the rural population. The private sector, which does not favour community orientated health care, is very strong and predominant in urban areas. 6- Culture affects the ways in which members from a given culture communicate and manifest symptoms of mental illness, their style of coping, their family and community support and their willingness to seek treatment. The cultures of the clinician and the service system influence diagnosis, treatment and service delivery. Cultural and social influences are not the only determinants of mental illness and patterns of service use, but they do play important roles. Mental health integration programs in Iran seem not to consider the role of the socio demographical and subculture aspect of minority and ethnical groups. 7- The integration program may have a significant role in development of Iranian mental health during the last decades. Screening of mental status, however, is at best an attentive attempt without appropriate referral system. A more realistic view would be to add new articles to the program according to the emerging demands. To define the demands it is essential to create psychiatric surveys preferably with regard to different regions in Iran. Regional psychiatric surveys are necessarily important since there is a vast difference between diverse regions with respect to sub cultural, socio-economic, etiological and religious background factors.

### ***Review of literature relating to mental health in Iran***

Since the fields of suicide, depression, PTSD and general health form a very extensive area of mental health and psychiatry, there is a considerable number of research and literature on the subjects. The majority of the research however, stem predominantly from the Western culture. Whilst existing studies provide valuable data and insight into PTSD, depression and suicide, more needs to determine the applicability of these findings outside of the context of Western culture. After initiation of the mental health integration program into primary health care quite a lot of research on the community mental health programmes have been undertaken in Iran (Bagheri Yazdi, 2001; Yasamy et al, 2001; Bolhari & Mohit , 1995; Hosseini et al, 1993; Hassanzadeh, 1992).

In the recent years a notable quantity of studies on other topics related to mental health have been carried out and published internationally. Studies in the field of Iranian mental health could be categorized as follows: The first category of mental health service research regards evaluation of the community mental health programmes (Bagheri Yazdi, 2001; Yasamy et al, 2001; Bolhari & Mohit , 1995; Hosseini et al, 1993; Hassanzadeh, 1992). A second group of documented research concern psychometric evaluations of psychiatric and other mental health related measurement instruments and questionnaires(Richter et al, 2007; Goodarzi & Firozabadi, 2005; Ghasemzadeh et al, 2005; Montazeri a et al, 2005).

The third group of research considers mental health and psychiatric topics among specific population groups (Azar et al, 2007; Emami, et al 2007, Khamseh et al, 2007; Ghazinour et al, 2004). The fourth category of mental health and psychiatric epidemiology contains two nationwide studies without any focus on ethnic minority populations in Iran: The first investigation is a study of the health status in the capital of Iran, Teheran in 1999 (Noorbala et al, 2004). In the survey assessed by General health questionnaire (GHQ-28) four groups of psychiatric symptoms including depression, anxiety, somatization and social functions were considered. 879 subjects from Tehran were interviewed by psychiatric registrars based on DSM-IV criteria. The prevalence of psychiatric disorders, epilepsy, and mental retardation was estimated to 21.5%. Prior studies in other countries have reported mental problems in up to 46% of the general population.

In the other study (Mohamadi et al, 2005) the prevalence of lifetime psychiatric disorders was estimated among the population of 18 and over on gender, age, educational level, occupational status, marital status and residential area. The sample was 25,180 individuals. The psychiatric disorders were diagnosed on the basis of DSM-IV criteria. The prevalence of psychiatric disorders was estimated to 10.81% (females 14,34% and males 7,34%). Anxiety and mood disorder dominated (8, 35% vs 4, 29%). The study (Mohamadi et al, 2005) points to a similarity of the mental health pattern in Iran to the western countries. It is estimated that at least about 7 millions of the Iranian population suffer from one or more of the psychiatric disorders (Mohamadi et al, 2005).

PTSD as psychiatric diagnosis has existed internationally since 1980. There is however no report concerning the prevalence and pattern of PTSD in the general population, in spite of the increased research in the field of psychiatry in Iran. There are, however, some studies regarding PTSD in the Kurdish population. These studies, however, discuss asylum seekers, refugees, and torture victims in western countries.

To this author's best knowledge there are no broader studies on mental health and psychiatric epidemiology in any of the ethnic minorities in Iran.

A small number of studies on the epidemiology of depression within Iran were found as well. The majority of these studies were focused on specific populations or categories. In one transcultural study, by WHO (Wing J. et al. 1996) the study suggested that the diagnostic inventory SCAN was suitable in Iran as well (Wing et al, 1996). The result seems to agree with another internationally broad investigation by Weissman and his collage (1996), who found that there are striking similarities across countries in patterns of major depression and of bipolar disorder. The differences in rates for major depression across countries suggest that cultural differences or different risk factors affect the expression of the disorder

## ***Literature overview focusing on Kurdish Iranian Population***

Some studies related to populations with Kurdish ethnicity (not the origin of country) were found. The majority of these studies discuss Kurdish asylum seekers, refugees, and torture victims resettled in western countries. (Bradley & Towfiq, 2006; Taloyan al, 2006; Bayard-Burfield et al, 2001; Sundelin Wahlsten et al, 2001). There, are however, few studies on mental health and psychiatric subjects among Kurdish Iranian:

An investigation assessed the long-term psychological impact of chemical warfare of Iran-Iraq war on the civilian population (Hashemian et al, 2006). In a Cross-sectional randomized survey of 153 civilians in 3 towns exposed to warfare in north-western Iran populated mainly by Kurdish Iranians the prevalence rates for lifetime PTSD, current PTSD, major anxiety symptoms, and severe depressive symptoms were 59%, 33%, 65%, and 41%, respectively.

One epidemiological investigation on depression in one of the cities in the Kurdistan province, Kamyaran conducted by Kheirabady and Mohammady (2001) showed that 69% of the participants had some degree of depression. BDI was used in the investigation and the sample consisted of 742 women and 659 men. There is, however, no study on either the prevalence or epidemiology of suicide neither PTSD in the province of Kurdistan.

One study of 1089 burn patients in Kurdistan province shows a result (Groohi et al, 2006) which indirectly considers the epidemiology of suicidal behaviour by burns in Kurdistan. The investigation was a population-based study on patients with suicidal behaviours by burns requiring hospitalization among adolescents during 2000-2001 in the Kurdistan province in Iran. Socio-demographic and etiological factors were obtained by interviews with each patient or with the family, relatives, or friends of the patient. Of 54 hospitalized burn patients aged 13-19 years, 40 (74.1%) patients were hospitalized because of suicidal behaviours by burns (6 males and 34 females). The incidence rate of these behaviours was 18.1 per 100,000 person-years and varied by gender (Groohi et al, 2006).

## **PTSD, depression and suicide**

### ***PTSD***

Post-traumatic stress disorder (PTSD) appeared in DSM-III in 1980 and emerged from studies of Vietnam War soldiers but also victims of natural and manmade disasters (Schnurr et al, 2002; Hageman et al, 2001). The study of PTSD goes back more than a hundred years. Before 1980, post-traumatic syndromes were recognized by different names, including railway spine, shell shock, traumatic (war) neurosis, concentration-camp syndrome, and rape-trauma syndrome (Schnurr et al, 2002; Hageman et al, 2001). The symptoms described in these syndromes overlap much with PTSD. According to the most recent edition of the Diagnostic and Statistical Manual of Psychiatric Disorders (DSM-IV-TR), the essential feature of PTSD is the development of characteristic symptoms following exposure to an extreme traumatic stressor characterized by: direct personal experience of an event that involves actual or

threatened death or serious injury, or other threats to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or knowledge about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate. The person reacts to this event with fear and helplessness, and tries to avoid being reminded of it. Traumatic events include military combat, violent personal assault, being kidnapped, being taken hostage, terrorist attack, torture, incarceration, natural or man-made disasters, automobile accidents, or being diagnosed with a life-threatening illness. The principal symptoms of PTSD are the painful re-experiencing of the event, a pattern of avoidance and emotional numbing, and fairly constant hyper arousal. Symptoms of increased arousal include difficulties falling or staying asleep, irritability or outbursts of anger, difficulty concentrating, hyper vigilance, and exaggerated startle response.

Epidemiological studies identified rates of PTSD within a general population as 1.3% (DSM IV criteria) 3.3% (ICD 10 criteria) and 7.8% (DSM-III-R criteria) respectively (Kessler et al, 1994).

Since the identification of PTSD as a diagnosable syndrome, a large quantity of research indicates that there is a correlation between PTSD, depression and suicide. There is evidence that traumatic events increase a person's suicide risk. Considerable debate exists, however, about the reason for this increase.

Whereas some studies suggest that the suicide risk is higher due to the symptoms of PTSD, (Oquendo et al, 2005; Ben-Yaacoy & Amir, 2004; Amir, et al 1999; Thompson et al, 1999; Davidson et al, 1991) others claim that suicide risk is higher in these individuals because of related psychiatric conditions. Some studies that point to PTSD as the cause of suicide suggest that high levels of intrusive memories can predict the relative risk of suicide. High levels of arousal symptoms and low levels of avoidance have also been shown to predict suicide risk. In contrast, other researchers have found that conditions that co-occur with PTSD, such as depression, may be more predictive of suicide. Further, some cognitive styles of coping such as using suppression to deal with stress may be additionally predictive of suicide risk in individuals with PTSD

On the individual level PTSD is known to be co-morbid with a variety of other psychiatric disorders particularly mood and anxiety problems (Kessler et al, 1995; Brady et al, 2000). Untreated co-morbid PTSD in persons with another major mental illness is associated with important negative effects such as increased symptom severity for both diagnoses, increased hospitalisation, prolonged treatment, poorer overall health outcomes for the individual and substance abuse (Mueser et al, 2002; Brady et al, 2000).

It is a constant finding in many studies that PTSD is comorbid with depression, anxiety and substance use disorders (Kessler et al, 1995; Brady et al, 2000).

A study by Breslau and co-worker (2000) looks at the link between trauma exposure, PTSD, and depression in a prospective data analysis of two large community-based samples. Their findings suggest that: 1- pre-existing major depression is a risk factor for both trauma exposure and PTSD. 2- Major depression risk is higher in persons who develop PTSD than in those who do not. 3- Differences in the risk for depression associated with PTSD versus exposure without PTSD are unlikely due to differences in trauma type. These findings

strengthen the hypothesis that PTSD and major depression in trauma victims are influenced by confluent, rather than distinct, vulnerabilities.

## ***Depression***

Depression is a serious public health concern. It remains the most common mental disorder (WHO, 1998, 1999) and is reported to be on the increase. Kessler et al, (1994) reported the prevalence of major depression over a period of 12 months to 13, 3% (men 7, 7% and females 12,9%). It is estimated that as many as one third of a population suffer from an episode of mild depression at some point in life (Paykel & Priset, 1992). Depression is also one of the most important issues from the perspective of health services.

Major depressive disorder is one of the most common and disabling of medical conditions. Depression is the fourth-ranked medical condition contributing to the global burden of disease, and is estimated to rise to second overall by the year 2010 (Murray & Lopez , 1997). According to Swedish national board SBU (2004) depression exerts the strongest effect on the state of health after respiratory infection, diarrhoea and infant diseases. Major depressive disorder is a main health problem associated with gradual and often incomplete recovery, significant limitations in functioning and well-being, greater risk of mortality due to medical illness, increased utilization of health services, and tremendous costs to society. Over the last decade there has been a marked increase in information on the epidemiology of depression. Depression is a typical multifactorial disorder and a lot of factors are known to influence this condition like genetic factors, disturbed family environment, marital conflict, stressful life events etc (Kendler et al, 2002).

## ***Suicide***

Suicide is the third leading cause of death in adolescents and is a major public health problem as well. Several risk factors for suicide have been identified. These include male sex, low social class, unemployment, previous suicide attempts, mental disorders including depression, and drug and alcohol abuse.

Suicide risk is addressed in relation to the joint effect of factors regarding mental illness, family structure, socioeconomics, demographics, and family history of suicide and mental illness, as well as gender differences. However, most suicide victims suffer from major depression around the time of death. Thus, rates of major depression are related to suicide rates (Henriksson et al, 1993).

The WHO estimates that, by the year 2020, the worldwide incidence of suicide will reach approximately 1.53 million people, and 10 and 20 times as many individuals will attempt suicide (Bertolote & Fleishmann, 2002). This global projection indicates, therefore, that suicidal behaviours constitute a significant public health problem

Systematic studies of consecutive suicides show that the risk for suicide concentrates heavily in people with psychiatric illness, particularly depressive. According to WHO (1998) more than 800 000 dies yearly of suicide. There are lots of studies on suicide across the world. A study on suicide which is part of broader research aimed to determine the lifetime prevalence and pattern of comorbidity on self-reported suicidal attempts in the general population of Iran (Mohammadi et al, 2005) suggest that many of the demographic correlates of suicidal behaviour in Iran are very similar to those seen in Western cultures; however, the sociodemographic factors such as few working women and very low levels of divorce is quite different to that of Western populations.

Because less than half of the suicidal attempters in Iran reported a psychiatric disorder, the existence of other pathways to suicide may be important foci for prevention. In some other studies on suicide in Iran different regions have been in focus for those studies. PTSD is frequently comorbid with depression disorder and when the two disorders co-occur the risk for suicidal behaviours is enhanced (Ocquendo et al, 2005).

## Aims of the study

The core aim of this thesis was to accomplish a psychiatric epidemiologic study on the Kurdish population of Iran. There is a need of psychiatric research in low and middle income countries and specifically in ethnically diverted minorities like Kurds to understand the nature and consequences of mental disorders. Since suicide, depression, PTSD and general mental health cover an extensive part of psychiatry the general aim of the study was to investigate these concepts in a relatively homogenous ethnic minority outside the western culture with internationally used instruments.

The specific aims are listed in table 1.

Table 1. The aim of the different studies

Study I	To investigate general mental health, quality of life and suicide related attitudes in Kurds living in Iranian Kurdistan.
Study II	To investigate the applicability of the PTSD Checklist (PCL) to a population outside the western cultural context and to analyze psychometric properties of the Persian version of the PCL. To assess prevalence figures of PTSD in Iranian Kurdistan.
Study III	To investigate attitudes towards suicide among the Kurdish population living in Iran and to contribute to a deeper understanding of different factors influencing the development of attitudes towards suicide.
Study IV	To investigate the assumption of a continuum of suicidal behaviour from suicidal thoughts and to explore the relationships between suicidal thoughts and attitudes towards suicide. To analyse the relationships of socio-demographic background variables to the prevalence of suicidal thoughts in Iranian Kurds.
Study V	To explore the relationships between typical PTSD- symptoms, depression, and attitudes towards suicide and suicide related thoughts in Iranian Kurds

## *Subjects*

The study was conducted in collaboration with Kurdistan University of medical science in Sanandaj. 1,000 households were approached in the investigation. There are about 68,000 households in Sanandaj and the households were selected by a cluster random sampling process. There are 24 health care districts and dependent on the catchment area 100 clusters were identified. In each of these clusters ten households were approached by two professional data collectors. If the person who opened the door was older than eighteen, he or she was invited to participate in the investigation. None refused to participate. The data collection was conducted during April and May 2006. The data collectors, received one day's training by the author concerning the questionnaires and data collection procedures. When the household participant was illiterate the data collectors read the items out for the person. Fourteen individuals were excluded from the statistical analysis due to too many missing values with no systematic drop-out according to any of the socio-demographic background variables.

Table 2. Characteristics of the sample by gender

	Males	Females	Total	t, $\chi^2$ resp.	p
N	478	518	996		
Age $\bar{x} \pm \text{sd}$ years	30,9 $\pm$ 9,1	31,8 $\pm$ 8,9		-0.79	0.429
Range in years	17-50	16-55			
No. of children $\bar{x} \pm \text{sd}$	1,2 $\pm$ 1,6	1,6 $\pm$ 1,6		-3,94	< 0.001
Employment situation in %					
Unskilled worker	12	1	6		
Housewife	1	67	36		
Civil servant	17	11	14		
Self employed person	41	2	21		
Unemployed	9	6	8		
Student	16	11	13		
Retired or early retirement	2	1	1		
Military	2	1	1	542.21	< 0.001
No. of Children in %					
0	49	35	43		
1	20	19	19		
2	16	22	18		
3-5	14	22	18		
> 5	3	2	3	30.41	< 0.001
Marital status in %					
married	55	71	63	26.12	< 0.001
Educational level in %					
Illiterate	6	12	9		
Elementary school	12	19	16		
Nine-year school	12	9	10		
Senior high school	14	9	12		
University	56	50	53	28.45	< 0.001

## *Methods*

The following instruments have been used in the investigation.

### *Quality of Life*

Quality of life is either interpreted as “condition of life” or as “experience of life” (Ferrans & Powers, 1992; Meeberg, 1993; Ghazinour et al, 2004). The World Health Organization defined the quality of life as the “individuals’ perception of the position in life in the context of the culture and values system in which they live and in relation to their goals, expectation, standard and concern”. This statement emphasizes the view that quality of life has an idiosyncratic meaning (WHO QoL group, 1995).

Montazeri and his colleagues in Iran (2003) added two items related to overall quality of life to the GHQ-12 (‘How do you evaluate your quality of life?’ and ‘How do you evaluate your general health?’ With possible answers: Very good; good; moderate; bad; very bad). These items were also used in this study.

### *GHQ12*

General mental health was assessed by means of the 12-items General Health Questionnaire (GHQ-12 - Goldberg & Williams, 1988). This screening instrument has been used in many investigations in various cultural regions (Lindo et al 2006; John et al, 2006; Monawar et al, 2006) including Iran (Montazeri et al, 2003; Montazeri et al, 2005; Kalafi et al, 2002) and its psychometric properties have been extensively investigated. The findings in this investigation are based on the original scoring used by Goldberg with response categories score ‘not at all’ and ‘no more than usual’ as 0 and ‘rather more than usual’ and ‘much more than usual’ as 1 providing a possible range from 0 to 12. Corresponding to the recommendation of Goldberg, Oldehinkel and Ormel (1998) to use a threshold of 3 / 4 when the population-mean is above 2.7, we decided to use a score of 5, as cut-off point for the differentiation between individuals without and with psychiatric morbidity.

Similar to the investigation of Montazeri and co-workers in Iran (2003), two additional items related to the overall quality of life were added to the GHQ (‘How do you evaluate your quality of life?’ and ‘How do you evaluate your general health?’ With possible answers: Very good; good; moderate or middle; bad; very bad).

## ***BDI II***

The Beck Depression Inventory Second Edition, BDI II (Beck AT et al, 1996) is a widely used self-report instrument intended to assess the existence and severity of symptom of depression as listed in the American Psychiatric Association's Diagnostic and Statistical Manual. The items are based on criteria of depression according to the DSM system in clinical and normal populations. Each item is a list of four statements in increasing severity about a particular symptom of depression. Items on the new scale replace items that deal with symptoms of weight loss, changes in body image, and somatic preoccupation. After testing original and new items on a large clinical sample (N=500), the new edition showed improved clinical sensitivity, with the reliability of the Coefficient Alpha =0.92 higher than BDI c.alpha 0.86. The Persian version of BDI II (Ghassemzadeh et al, 2005) was used in the study.

## ***PCL-C***

The PTSD checklist (PCL-C) is a brief self-report instrument of seventeen items with a scale from one to five. PCL-C measures typical symptoms of PTSD referring to the DSM diagnostic system in individuals with traumatic life events. PCL-C can be applied as a diagnostic tool. In cases where an individual reported a major incident in life they were instructed to indicate how much they have been bothered by each symptom during the past month using a five point scale from 1 = not at all to 5 = extremely. In our study, we found the psychometric properties somewhat lower (Blanchard, et al, 1996) but still acceptable taking the low number of items into account (Re-Experiencing scale – cluster B symptoms: alpha = 0.79; Numbing and Avoidance scale – cluster C symptoms: alpha = 0.70; Increased arousal scale - cluster D symptoms: alpha = 0.77; corrected item-intercorrelation: 0.46 – 0.61; Total score: alpha = 0.88).

The psychometric properties of the Persian version of the PCL were analysed. The questionnaire was translated and back translated to Farsi language. Farsi is, however, not the mother tongue for Kurdish Iranians but almost the whole population speaks Farsi as the national language of Iran.

## ***Life Events Checklist***

A reduced and adapted version of the Life Event Checklist (LEC –Gray, Litz, Hsu & Lombardo, 2004) was used to point out the traumatic events experienced by the participants. Fourteen possibly traumatic events were included in this version. Questions on sexual assaults and explicit war experiences were omitted from the LEC for ethno cultural reasons. Respondents were instructed to provide information about whether they had experienced the event themselves, were a witness, had just heard about it, were not sure about the source of the information or had no experience of such a type of event. LEC was back and forth translated to Farsi.

## ***ATTS***

Attitude toward suicide (ATTS) questionnaire is constructed to measure attitudes toward suicide in large-scale surveys in the general population. The questionnaire was developed by a Swedish research group in two different occasions 1986 and 1996 (Salander Renberg & Jacobsson, 2003). It consists of 61 items to cover different aspect of suicidal attitude and suicidal behavior. ATTS is divided into three sections. The first section is about *contact with the suicide problem* with three items. A second section with 39 items evaluates attitudes. The third part consists of some questions about *suicidal behaviour* of the responders, which contains 8 items. There is also another section included with 5 items which is about personal data such as sex, age, educational status, educational years, and cohabitation status. The questionnaire was translated from Swedish into Persian, independently back-translated by bilingual persons, and adapted according to established rules including pilot testing in collaboration with colleagues from Tehran (Emami et al, 2006).

The investigation also contained a qualitative part with focusgroup interviews. The aim was to get a deeper understanding of the way people think about mental health problems with special focus on suicidal behaviour. Three groups with 6-7 participants in each were conducted led by a psychologist from the university. The present author supplemented the leader on what was said. In additionally interviews with some persons including a mullah were undertaken. This material has not been systematically analyzed but has contributed to the understanding of the quantitative data that has been collected.

### Statistical Analyses

A number of statistical analyses have been performed according to table 3.

Table 3. Summaries of instruments and statistical analyses in the studies.

	STUDY INSTRUMENT	STATISTICS
Study I	GHQ12- General Health Questionnaire. Questions on quality of life. ATTS- Attitude toward suicide	Means, standard deviations. T-tests chi-square-tests. Spearman rank correlation coefficients, linear multiple regressions. Kaiser normalisation for testing the factor structure of the GHQ-12. Cronbach's alpha scores. Corrected item-intercorrelations
Study II	PCL- C- The PTSD Checklist, civil version LEC – Life Event Checklist	Means and standard deviations. T- tests. Chi-square-tests and one-way analyses of variance with Bonferroni controlled post-hoc comparisons Pearson correlation coefficients, partial correlations and linear multiple regressions.
Study III	ATTS- Attitude toward suicide	Means and standard deviations. T- tests. 1-way ANOVA Chi-square tests and stepwise logistic. Parameters sensitivity.
Study IV	ATTS- Attitude toward suicide	Means and standard deviations. T-tests and chi-square-tests. Pearson correlation. Multiple ANOVA
Study V	BDI II- Becks depression inventory. ATTS- Attitude toward suicide. PCL- C- The PTSD Checklist, civil version. GHQ12- General Health Questionnaire. LEC- Life events checklist	Means and standard deviations and percentages were provided. T-tests for independent samples and 1-way ANOVAs were applied for searching for differences between subgroups under study dependent on the scale. Chi-square tests, Pearson correlation coefficients, multiple regressions and a path-analysis were calculated to explore the relationships between variables.

## Summary of the papers

### ***Paper I* General Mental Health, Quality of Life and Suicide Related Attitudes among Kurdish People in Iran.**

The study investigated general mental health, quality of life and suicide related attitudes in Kurds living in Iranian Kurdistan.

The results from the general mental health part of the study indicated that 27.3 % of the individuals have to be regarded as suffering from a psychological disturbance. No gender difference regarding the number of 'cases' was found.

The current employment situation was significantly related to the GHQ-12 case-categorisation with the most 'cases' occurring amongst the unemployed (41 %), followed by workers (36 %), students (32 %), self-employed (28 %) and housewives (25 %). The educational level was relevant to the GHQ-12 case categorisation

Unmarried individuals reported significantly lower scores on the factor "Preventability of suicide" of the ATTS than those who were married. There were significant differences about the education level in relation to the ATTS factors "General acceptance of suicide" (factor 1) and "Suicide-related communication problems" (factor 3) mainly items on reluctance to tell about suicide. There was no gender related difference regarding the investigated variables except for the factor "Preventability of suicide" where females reported more optimistic attitudes towards suicide prevention.

Relationships between general mental health and suicide related attitudes indicated that those 'cases' who were identified by the GHQ-12 classification, reported lower scores on ATTS factor 2 and higher scores on ATTS factors 1. Marital status was associated with both preventability of suicide and GHQ-12 caseness. An increasing number of experiences related to suicide and the increasing emotional closeness of those experiences was found to be related to an increased probability that the individual would be classified as a 'case' according to the cut-off point of the GHQ-12 total score.

## ***Paper II Post Traumatic Stress Disorder in Kurdish Iranians***

The study intended to explore the applicability of the PTSD Checklist (PCL) in Kurdish Iranians and to create a survey of the prevalence of PTSD in Iranian Kurdistan. The study also aimed to analyze psychometric properties of the Persian version of the PCL.

Four hundred and eight of the participants reported that they had a kind of traumatic experience according to Life Events Checklist. There was a significant relationship between the type of event and the relationship to the event with injuries, diseases and maltreatments most often being self-experienced, while sudden deaths and drowning more frequently were reported as witnessed. Drowning, burns/scalds and suicides were most often reported as being heard about from somebody

10.9 % of the 408 individuals in the sample should be recognized as suffering from PTSD. With decreasing emotional involvement in the event, the probability of suffering from a PTSD decreases (PTSD when one's own experience: 25 %, when witnessed: 22 %, when told about by somebody: 14 %, when not sure of the source: 7 %). No substantial relationship between PTSD and the type of event was found. Women suffered much more often from PTSD than men (12.7 % vs. 8.8 %).

### ***Paper III Attitudes towards Suicide among Kurdish people in Iran***

A small number of subjects in the sample reported personal experiences of people having committed suicide, suicide attempts, current suicide ideations and/or expressions of suicide thoughts among their families at least once in their life (between 0.7 % current suicide thoughts in a child and 4.2 % of suicide thoughts expressed by siblings).

The result showed that 10 % of the investigated group had some experience related to suicide within their social environment ranging from family members to friends and acquaintances. The number of possibly affected individuals increases as the social and emotional distance increases from relatives to friends and acquaintances.

It seemed to be a trend to respond more openly about this topic with increasing social and emotional distance. Reported suicide experiences and suicide attempts were significantly increased when one family member was already affected. Participants with higher education reported much more experiences than illiterate subjects and those with an elementary school education.

Suicide of a partner was reported more often by individuals in their twenties and thirties. Suicide of friends and acquaintances was reported significantly more often by the subjects in the youngest age cohort. Suicide attempts of a partner were reported more often by younger individuals than those who were middle aged. The younger the subjects, the more often they reported suicide attempts of a friend.

Individuals with lower education reported higher scores on the factor "General acceptance of suicide". Subjects with a university education scored higher on the factor "Difficulties communicating about suicide" than illiterates, those with elementary school education and those with senior high school training.

## ***Paper IV Continuity from suicidal ideations to suicide attempts in Iranian Kurds.***

The aim of the study was to test the hypothesis of a continuum from suicide thoughts to suicide attempts and also to analyse the relationships of common socio-demographic background variables such as gender, age, cohabitation and employment with the prevalence of suicidal thoughts in Iranian Kurds.

6.3% of the investigated group reported a suicide attempt lifetime. 19.5 % of subjects who reported a suicide attempt during the last year reported also that they had experienced suicide related thoughts in the last year, whilst 4.1% of the other 955 individuals, who did not report a suicide attempt, did experience all the reported suicidal thoughts during the last year.

Suicide attempts were more reported by younger individuals. On average, females reported more death wishes than males during the last year independent of their cohabitation status. This difference was more frequent in single than in married women.

The study showed that suicide related thoughts and reported suicide attempts were related to attitudes towards suicide measured by the ATTS. The factor ‘Preventability of suicide’ implied that the more often the individuals had suicidal thoughts the more doubtful they were that suicide could be prevented. Suicidal ideations and suicide plans were found to be related to “general acceptance of suicide”. The participants reported all types of suicidal thoughts much more during the last year compared to earlier in life and more individuals reported suicide attempts during the same period.

## ***Paper V* How about the relationships between PTSD, depressivity and suicide related thoughts in Iranian Kurds?**

The study explored the relationships between PTSD, depression, attitudes towards suicide and suicide related thoughts.

PCL screened those individuals who reported at least one life event based on the LEC. The number of individuals was consequently reduced down to a subgroup in all analysis including the PCL symptom scores, totally 564 individuals. There were no significant differences related to gender, age, education, or employment status between the samples. A greater proportion of females who reported a life event were married than the females in the total sample. There were no gender differences related to the general mental health and the severity of depression. Females reported more doubts related to the preventability of suicides, more frequent and more severe re-experience symptoms related to PTSD typical symptoms and more increased arousal symptoms as well as a higher PCL total score than males.

Depression scores in GHQ and in the BDI were positively correlated with the general acceptance of suicide referring to the fact that the more severely depressive the individuals were, the higher their acceptance of suicide. Characteristic symptoms of PTSD were negatively correlated with suicide-related communication problems. The more severe the PTSD symptoms were, the more pronounced suicide-related communication problems were reported. The more severely depressive the individuals were, the more PTSD typical symptoms were demonstrated by participants.

Table 4. Overview of specific findings

<p><b>Study I</b> General Mental Health, Quality of Life and Suicide Related Attitudes among Kurdish People in Iran</p>	<p>27.3 % of the participants have to be regarded as suffering from a psychological disturbance. Those 'cases' who were identified by the GHQ-12 classification, reported lower scores on ATTS factor 2 and higher scores on ATTS factor 1. Marital status was associated with both preventability of suicide and GHQ-12 caseness.).</p>
<p><b>Study II</b> Post Traumatic Stress Disorder in Kurdish Iranians</p>	<p>10.9 % of the 408 individuals in the group were suffering from PTSD. (PTSD when one's own experience: 25 %, when witnessed: 22 %, when told about by somebody: 14 %, when not sure of the source: 7 %. No substantial relationship between PTSD and the type of event was found. Women suffered much more often from PTSD than men (12.7 % vs. 8.8 %).</p>
<p><b>Study III</b> Attitudes towards Suicide among Kurdish people in Iran</p>	<p>. 10 % of the subjects had some experience related to suicide within their social environment. The number of possibly affected individuals increases as the social and emotional distance increases from relatives, friends and acquaintances.</p>
<p><b>Study IV</b> Continuity from suicidal ideations to suicide attempts in Iranian Kurds.</p>	<p>6.3% of the subjects reported a suicide attempt lifetime. 19.5 % of subjects who reported a suicide attempt during the last year also reported experience of suicide related thoughts in the last year, whilst 4.1% of the other 955 individuals, who did not any suicide attempt, did experience suicidal thoughts during the last year. Suicide attempts were more often reported by younger individuals</p>
<p><b>Study V</b> How about the relationships between PTSD, depressivity and suicide related thoughts in Iranian Kurds</p>	<p>Characteristics symptoms of PTSD were negatively correlated with suicide-related communication problems. The more severe the PTSD symptoms were, the more pronounced suicide-related communication problems were reported. The more severely depressive the individuals were, the more PTSD typical symptoms were demonstrated by participants.</p>

## Ethical considerations

The investigation was approved by the deputy of research at Kurdistan University of medical sciences in December 2005 which also includes a review of the ethical implications of the study. An official written agreement between the Psychiatric division at Umeå University and the deputy of research at Kurdistan University of medical sciences was obtained in December 2005. According to the collaboration contract the University of Medical Sciences in Kurdistan contributed by organizing the data collection via health care centres in Sanandaj. Giving feedback to the University of Kurdistan is planned. A brief report of the study results is planned to be published in a monthly journal of the university.

The study was performed in accordance with the Helsinki declaration on Research ethics. The questionnaire was answered in anonymity and the participation was voluntary. The data collectors were trained to inform about the mental health services in case a participant asked for professional help during data collection process or in case the questions arouse consideration or anxiety.

There are, however, some reflections on this topic:

How can the very high participation be understood? The data collection was arranged by University of Kurdistan as a governmental authority. It has to be considered that the voluntary participation could be due to concern about the consequences of not participating.

Another reflection is the issue of mental illness and the threat of stigma: In western cultures this taboo is less pronounced, while in traditional societies the taboo is linked with shame. This might have led to an under reporting of symptoms and problems. Unmet health care needs; disappointment with health care and culturally related expressions can, on the other hand, have led to exaggerations about the symptoms.

## Limitations

All information in this study is self reported. Self reported health status is a useful tool to monitor the health conditions of a population. It is however a subjective and imprecise measure of health, which reflects a person's general perception of health more than well, defined health outcomes. Self reported health is widely used in studies performed in western countries (Heistaro et al, 1996). There are some possibilities of bias from self reported data: The self reported health status in this investigation is valid in screening of PTSD and depression. However diagnoses are based on, not only categories of symptoms reported by participant, but also demand clinical observation as well.

The absence of representative and comparative data on self reported health status in ethnic minorities outside the western is another limitation. Uncertainty about the significance of self rated health status have been suggested by an Australian study that showed unexpected gender differences in health ratings (McCallum et al, 1994)

As the study was cross sectional, the causality must be handled with caution. The questionnaires used in this study translated to Farsi could contribute another barrier: despite the fact that the major parts of Iranian Kurds understand Farsi language there might have been some problems in understanding some of the questions.

Is ethnicity a valid epidemiological variable? Ethnicity needs to be used with caution to be a useful tool for health research (Senior & Bhopal, 1994; Sheldon & Parker, 1992). The population in this study is Kurdish Iranian. Using ethnicity and minority as a variable is possible in relation to another ethnicity or in this case with other Iranians. The homogeneity of Iranian Kurds as a group is based on the direction of Islam (Kurds are sunni muslims) and the Kurdish language: Are Kurdish Iranians separated from other Iranian by their language and religion? One other limitation concerned socio-demographic information available about the Kurdish population in Iran. This study approached a population from a larger city in Iranian Kurdistan; however, the mental health status in rural areas in Kurdistan is still untouched. The value system in rural areas may be much more conservative which would possibly increase the communication barrier related to the topic of mental health status particularly within one's own family.

Individuals with higher education seem to be overrepresented in this investigation. The lack of other comprehensive investigations of the Kurdish populations' mental health made a comparison impossible.

## General Discussion

The purpose of this study was to create a mental health survey in Iranian Kurdistan by determinations of pattern and prevalence of general mental health, PTSD, suicide related attitudes, and depression.

More than one fourth of the investigated population might be regarded as probably suffering from a psychological disturbance. This was related to the following socio demographic variables: age, marital status, education and employment. Younger participants, unmarried individuals, students, unemployed and self employed evaluated their overall mental status as bad. Common for this subgroup is perhaps a low social safety due to non-availability of health- and social insurance and also worries about the future. Several studies confirm that mental health problems can be elicited by unemployment. The remarkable educational progress of Iranians, particularly of girls, in the last two decades should be considered as a social phenomenon. On the other hand the labour market cannot meet this development. Having an academic education perhaps limits the motivation for higher educated to conduct unskilled work in case of availability, particularly for girls. Not having an employment reduces the opportunity for marriage especially for men that are supposed to support the family. Because of women's role in Iranian society, education has a strong social value and is a way to gain greater freedom for them. Having an academic education and having potential to be economically independent changes women's expectations about marriage in the Kurdish traditional society. The evidence for this circular effect is that the average age of marriage in Iran has increased dramatically in recent years. Marital and employment status together with education will in view of this hypothetic process have an amplified effect upon mental health in coming years.

This phenomenon is significant not only as regards mental health but even in suicide related attitudes: Unemployed and students reported suicide related experiences in their social network most often. The study also indicated a pessimistic attitude towards suicide prevention: Whilst less well-educated individuals reported higher scores on the factor "General acceptance of suicide", participants with higher educational level scored higher on the factor "Suicide-related communication problems" whilst there was a significant positive correlation between age and pessimistic attitudes towards suicide prevention. This finding might to some extent be explained by the strain theory according to which society puts too much emphasis on the success goal and offers limited means for achieving the goal. The Kurdish society as a part of Iran is undergoing a dramatic change. The notable educational progress of Iranian and the median age of Iranian including Kurds with 24 years for males and 25 years for females is a great challenge for the government and the health care system. The traditional role of women is already challenged by the high educational level. Globalisation and the power of media will perhaps extend the boundaries of traditions and family structure. In such a case that is not far-fetched, suicidal behaviour and above all the pattern of mental health will be even more similar to other societies, although the expression of mental illness may remain the same for some time.

In line with other research on populations who profess Islam, the lifetime rate of suicide attempts of Iranian Kurds was low compared to people from Western countries, whilst the prevalence of reported suicidal thoughts of various intensity were found to be high. Is Islam as religion protective against suicide, since suicide is prohibited in Islam? After all, other religions do not sanction suicide either. The study also showed that the number of affected individual's increases as the social and emotional distance increases from relatives, friends, acquaintances or even others, compared to members of the individual's own family. It was thus a trend to respond more openly about suicide with increasing social and emotional distance. This relation between this openness and distance can be understood by normative and traditional family values. In a normative/ traditional society stigma and sense of disgrace for failure (including suicide) involve the family as well. The religion's protective effect perhaps is reinforced by a sense of group belongingness and networks and affected individuals' reciprocal responsibility. The fact that Islamic nations are predominately normative and traditional societies can support the protective effect of religion. It has to be recognized that the investigation approached a population from a larger city. The value system of people from rural areas may still be more conservative which would possibly increase the communication barrier related to the topic of suicide, particularly within one's own family.

Another bias in this matter could be considered from a socio-political and social deterministic view: Kurdish people as an ethnic minority may not trust the authorities and the social- and health care system and be careful about the consequences of their responses. Other barriers may still be involved: the education levels of participants were above the average. Good economy and higher education are values worth striving for, in all societies. Exaggerations about education level can to some extent explain the over- representation of well educated respondents.

The prevalence of PTSD in the sample is estimated to 10.9 %. In view of the historical development in this region and the situation of ethnical minorities, a higher PTSD prevalence was expected. The lower than expected PTSD prevalence might be caused by methodological limitations of the applied assessment instrument due to the use of methods developed in a different culture. Additionally an underestimation of the PTSD prevalence is caused by the fact that rape and sexual assault and explicit war experiences were omitted from the LEC. In a follow up study with 100 households from the sample, LEC in its original form with items concerning rape, sexual assault and explicit war experiences was used. The prevalence of PTSD increased to more than 12%.

The PTSD figures might be partly explained by the fact that Iran has one of the highest rates of traffic accidents and mortality in traffic accidents. Road traffic accidents represent the second highest cause of death after heart diseases. The war between Iran and Iraq (1980-88) might be another reason for the high prevalence of PTSD because many Kurdish people were exposed to this military conflict. PTSD as a psychiatric diagnosis entered the DSM system in 1980. In the face of the fact that benzodiazepine is very frequently used in Iran and in the view of the rate of traffic accident, domestic violence (Women suffered significantly more often from PTSD than men with 12.7 % vs. 8.8 %) nature and community disaster, sexual related issues etc, PTSD should be recognized as an important research area.

The relationship between PTSD, depression and suicide behaviour in our investigation pointed to a higher acceptance of suicide attempts and thoughts in the case of severe depression. Females reported substantially more doubts related to the preventability of suicides and more characteristic symptoms of PTSD. The more severe the PTSD symptoms were, the more pronounced suicide-related communication problems were reported. Severity of depression was correlated with PTSD typical symptoms. Depression was of highest impact upon suicide related behaviour. The result supports the idea that depression is predictive for attitudes towards suicide. Similar to other researchers, this study confirms that being married seems to have protective effect against both the PTSD and suicide attempts for males but not for females. Mental illnesses affect women and men differently. It is generally known that women experience depression twice as often as men and they often experience it earlier, longer, and more severely. The study confirms this statement. One reason is that Iran as Islamic republic has strict adherence to Islamic traditions and well defined implications for way of life and gender issues. As mentioned earlier the processes of change in Kurdish society meets resistance not only by traditions but also by regulations in the society. The investigation provides meaningful information about the overall mental health status of the Kurdish population from an urban area in Iran and confirms several mental health patterns founded in the international literature. These relationships are found to be equivalent to those reported from studies with Western culture and do not have to be regarded as culturally specific. There are however, some considerations on this issue: measuring mental illness with instruments created in western context on mental health related issues needs special concern. If this is the case it is important to use also other means such as qualitative investigations, adapt questionnaires not only on the linguistic level but in message level as well. One central practical conclusion of this study was that Kurdish individuals in Iran are in need of facilities and interventional programs to improve mental health. The integration so far of mental health in public health is not at all sufficient to meet the growing need of mental health care. Such programs should create a dialog about the importance of mental health issues not as secondary to physical health matters with political bodies. A more easily accessed information to the public about symptoms and syndromes of major and common mental health problems like depression, anxiety, PTSD, suicidality etc, need to be developed. Both the public health and private health care sector should be more attentive about mental health issues, and possible treatments. It is important to reinforce the referral system by providing more facilities. Strategies to reduce the risk of additional stigmatisation of the individual and network should be developed.

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