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# Suicide and Islam

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*Much of the research on suicidal behavior in Muslim countries has been simple descriptive studies of samples of completed and attempted suicides. Despite this, and despite the possible under-reporting of suicidal behavior in countries where such behavior is illegal, suicide rates do appear to be lower in Muslims than in those of other religions, even in countries which have populations belonging to several religious groups. Rates of attempted suicide, on the other hand, do not appear to be lower in Muslims as compared to non-Muslims. Research into this topic has been quite poor, failing to take into account the ethnic background and the Islamic sect to which the suicidal subjects belonged. Reasons for the low rate of completed suicide in Muslims are reviewed, including differences in values and socio-economic status.*

**Keywords** Islam, religion, completed suicide, attempted suicide

The issue of whether Protestants or Roman Catholics have a higher suicide rate has preoccupied suicidologists from the time of Durkheim's (1897) classical work on suicide (Pescosolido & Georgiana, 1989). The relationship of Islam to suicide is no less important and no less complicated (since there are many sects of Islam), but this relationship has received very little scholarly attention.

The basic "fact" that this article will address is that suicide rates are much lower in Islamic nations than in other nations and lower in Muslims than in those belonging to other religious groups. We will examine the relevant data and attempt to explain this difference.

This review is organized into nine parts. First, the suicide rates in nations of the world will be examined for its association with the percentage of Muslims, both the simple association and with multivariate analyses.

Second, studies over regions within nations of different religious compositions are reviewed; these have the advantage that the suicide rates are more likely to be reliable and valid since the medical examiner practices within a single nation is more likely to be similar than those practices in many different nations. Several nations have large groups belonging to different religions, and some of these do report suicide rates by religious affiliation for the nation as a whole. Part three of this paper reviews this research.

Perusal of the major journals leaves the impression that very little research is conducted and published on completed suicide, attempted suicide, suicidal ideation and attitudes toward suicide in largely Muslim nations. However, this is not the case, although it is difficult to identify and obtain reports of this research, much of which is quite basic (descriptive) in nature. This paper reviews this research, and it is noteworthy that many such studies were identified.

It is important to note that theories of suicide were tested in different cultures so that the cultural invariability of the theories can be examined. Additionally, research

results need to be replicated in other cultures. Such research studies in Muslim nations are reviewed.

Finally, the findings are discussed, and issues for future research explored.

## NATIONAL SUICIDE RATES AND THE PERCENTAGE OF MUSLIMS

No Middle Eastern nation has reported mortality data to the World Health Organization (WHO) since 1989. The latest suicide rates reported since the inception of the publication of the Annual Statistics from WHO (WHO, annual) are shown in Table 1.

In order to remedy this lack of data, Lester (1996a) tried to obtain suicide rates for as many nations of the world as he was able for the years of 1969–1971 and 1979–1981. He wrote to the embassies of nations, which do not report mortality rates to the WHO, and he searched the scholarly literature for information on suicidal behavior in those nations for two 7 periods: 1969–1971 and 1979–1981.[1] Furthermore, he chose a sample of large nations (with populations over one million) for which data were available and examined correlates of suicide rates in the years of 1979 to 1981 within 61 nations of the world. The suicide rates and percentages of the Muslim populations for this sample are shown in Table 2. The Pearson correlation between the suicide rates of these nations and the percentage of the population, which is Muslim, is $-0.33$ (two-tailed $p < .01$).

***TABLE 1.*** **Suicide Rates Reported to WHO by Middle Eastern Nations (Latest Available Year)**

| | Total | Male | Female | Year |
|---|---|---|---|---|
| Bahrain | 3.1 | 4.9 | 0.5 | 1988 |
| Egypt | 0.04 | 0.1 | 0.0 | 1987 |
| Jordan | 0.0 | 0.1 | 0.0 | 1978 |
| Kuwait | 0.8 | 1.0 | 0.6 | 1987 |
| Syria | 0.3 | 0.5 | 0.1 | 1981 |

[1]Lester chose 1970 and 1980 as his standard years since census data is typically obtained by nations for these years. Lester chose a 3-year period since not every nation reported suicide rates for 1970 and 1980, but occasionally for a neighboring year instead.

### Multivariate Studies of National Suicide Rates

Two studies have appeared which conducted multivariate studies (both factor analyses) of the social variables, which are associated with national suicide rates. In a study of 61 nations and 22 social variables in 1980, Lester (1996a) identified six orthogonal factors, one of which had the percentage of Muslims loaded highly on it. Only one of these factor scores was significantly associated with suicide rates, a factor that seemed to measure "developed nation" status (low birth rates, high literacy and highly urban). The factor with a high loading from the percentage of Muslims was not significantly associated with suicide rates.

Simpson and Conklin (1989) used 71 nations in circa 1970 and 13 social-economic variables. A factor-analysis of all 14 variables identified four factors which Simpson and Conklin labeled as: Economic Development, Islam, Christianity, and Eastern Bloc. The factor labeled Islam had high loadings from percentage of Muslims, sex ratio, percentage of women in the labor force, and percentage over the age of 65. The suicide rate was loaded strongly on the factors labeled Economic Development (negatively) and Islam (negatively). In all of the multiple regressions that Simpson and Conklin examined, the percentage of Muslims was a significant predictor of the suicide rate.

*TABLE 2.* **Suicide Rates and Percentage Muslims in Nations of the World, 1979–1981**

| | Suicide rate | % Muslim | | Suicide rate | % Muslim |
|---|---|---|---|---|---|
| Argentina | 7.2 | 0.0 | Mexico | 1.7 | 0.0 |
| Australia | 11.3 | 0.0 | Netherlands | 10.2 | 0.0 |
| Austria | 26.0 | 0.0 | New Zealand | 10.2 | 0.0 |
| Belgium | 21.5 | 0.0 | Norway | 12.4 | 0.0 |
| Brazil | 3.4 | 0.0 | Panama | 2.0 | 0.0 |
| Bulgaria | 13.9 | 10.5 | Papua/New Guinea | 0.2 | 0.0 |
| Canada | 14.1 | 0.0 | Paraguay | 1.5 | 0.0 |
| Chile | 5.5 | 0.0 | Peru | 1.2 | 0.0 |
| Colombia | 3.5 | 0.0 | Poland | 12.7 | 0.0 |
| Costa Rica | 4.4 | 0.0 | Portugal | 8.3 | 0.0 |
| Czechoslovakia | 19.8 | 0.0 | Puerto Rico | 8.5 | 0.0 |
| Denmark | 29.1 | 0.0 | Saudi Arabia | 1.3 | 98.8 |
| Dominican Republic | 2.0 | 0.0 | Singapore | 9.8 | 17.4 |
| Ecuador | 2.8 | 0.0 | South Africa | 5.3 | 1.3 |
| Egypt | 0.1 | 81.8 | South Korea | 20.6 | 0.0 |
| El Salvador | 12.1 | 0.0 | Spain | 4.4 | 0.0 |
| Finland | 24.7 | 0.0 | Sri Lanka | 27.8 | 7.2 |
| France | 19.2 | 3.0 | Sweden | 19.1 | 0.0 |
| Greece | 3.2 | 0.0 | Switzerland | 24.7 | 0.0 |
| Guatemala | 1.0 | 0.0 | Syria | 0.4 | 89.6 |
| Honduras | 1.2 | 0.0 | Taiwan | 9.9 | 0.0 |
| Hong Kong | 12.4 | 0.0 | Thailand | 7.1 | 3.9 |
| Hungary | 45.0 | 0.0 | Trinidad & Tobago | 4.8 | 6.5 |
| India | 6.0 | 11.6 | Turkey | 1.8 | 99.2 |
| Ireland | 6.2 | 0.0 | United Kingdom | 8.6 | 0.0 |
| Israel | 6.0 | 8.0 | USA | 12.0 | 0.0 |
| Italy | 7.1 | 0.0 | USSR | 26.9 | 11.3 |
| Japan | 17.5 | 0.0 | Venezuela | 4.7 | 0.0 |
| Jordan | 2.2 | 93.0 | West Germany | 21.4 | 2.4 |
| Kuwait | 0.7 | 95.1 | Yugoslavia | 14.8 | 10.4 |
| Malaysia | 0.6 | 49.4 | Zimbabwe | 6.1 | 0.0 |

It is interesting that the results of the factor analyses conducted by Simpson and Conklin and by Lester differ in the strength and the relevance of the association between suicide rates and Islam. This illustrates the importance of the period for which the data were chosen, the nations included in the sample, the predictor variables chosen for the study, and the particular statistical analysis used.

## STUDIES WITHIN A NATION

One problem with the multinational studies is that different nations have different practices and customs for certifying deaths as

suicides. Therefore, nations with low suicide rates are often suspected of covering up suicides by labeling them as natural, accidental or undetermined (Douglas, 1967). Studies within a single nation eliminate this problem to some extent.

After the break-up of the Soviet Union, many of the formerly oppressed nations began to report suicide statistics. Lester (1999) studied 14 of these nations in the former Soviet Union, nations such as Azerbaijan and Uzbekistan. The suicide rates and percentage of the Muslim populations are shown in Table 3. The association between their suicide rates in the early 1990s and the percentage of Muslims was significant and negative (Pearson $r = -0.60$).

The provinces of India differ in the percentages of Muslims. In 1981, this percentage ranged from 0.64% in Orissa to 66.47% in Jammu and Kashmir (see Table 4). Lester (1996b) found no association between the suicide rate of 21 Indian states and the percentage of Muslims. The Pearson correlation was only $-0.09$.

*TABLE 3.* **Suicide Rates and Percentage Muslims in Nations from the Former USSR**

| | Suicide rate 1990 | % Muslim |
|---|---|---|
| Armenia | 2.8 | 0 |
| Azerbaijan | 1.6 | 87 |
| Belarus | 20.4 | 0 |
| Estonia | 27.1 | 0 |
| Georgia | 3.6 | 11 |
| Kazakhstan | 19.1 | 47 |
| Kyrgyzstan | 12.5 | 70 |
| Latvia | 26.0 | 0 |
| Lithuania | 26.1 | 0 |
| Moldova | 14.8 | 0 |
| Tajikistan | 4.4 | 85 |
| Turkmenistan | 8.1 | 87 |
| Ukraine | 20.7 | 0 |
| Uzbekistan | 7.2 | 88 |

*TABLE 4.* **Suicide Rates and Percentage Muslims in Indian Provinces**

| | Suicide rate 1981 | % Muslim 1981 census |
|---|---|---|
| Andhra Pradesh | 5.45 | 8.8 |
| Assam[a] | – | – |
| Bihar | 0.64 | 14.4 |
| Gujarat | 4.84 | 8.7 |
| Haryana | 4.97 | 1.1 |
| Himachal Pradesh | 2.04 | 0.1 |
| Jammu & Kashmir | 0.33 | 66.5 |
| Karnataka | 10.71 | 11.3 |
| Kerala | 16.10 | 21.3 |
| Madhya Pradesh | 4.95 | 4.9 |
| Maharashtra | 5.65 | 10.1 |
| Manipur | 0.44 | 7.2 |
| Meghalaya | 3.15 | 4.2 |
| Nagaland | 1.61 | 1.6 |
| Orissa | 7.21 | 0.6 |
| Punjab | 4.29 | 2.6 |
| Rajasthan | 2.53 | 7.5 |
| Sikkim | 9.42 | 1.4 |
| Tamil Nadu | 10.01 | 5.2 |
| Tripura | 21.83 | 6.9 |
| Uttar Pradesh | 2.79 | 16.0 |
| West Bengal | 12.10 | 21.7 |

[a]No data were available for Assam.

The results of these two studies conflict. The former nations of the Soviet Union showed the expected negative relationship between Islam and suicide, but the provinces of India did not. It would be useful in future research to explore when the negative association is found and when it is not and to speculate on reasons for the inconsistencies.

## SUICIDE RATES BY RELIGION WITHIN NATIONS

Several nations contain residents with differing religious affiliations, and these

nations allow us to compare suicide rates by religion under conditions where the medical examiners and coroners may be using similar criteria.

## The Indian Subcontinent

Lester (2000) reviewed research on the suicide rates of nations in the Indian subcontinent (Bangladesh, India, Pakistan and Sri Lanka), nations that differ in the proportion of their population which are Muslim (Bangladesh 83%, India 12%, Pakistan 97% [77% Sunni and 20% Shia], and Sri Lanka 7%).[2] However, people from those nations have immigrated to other countries and, of these, only the United Kingdom has suicide rates available by the region of origin.

No suicide rates are available for Bangladesh although I have obtained suicide rates for those aged 15–19 from Obaedul Huq (personal communication): 0.8 per 100,000 per year in 1965, 1.3 in 1970, 3.1 in 1975, and 2.5 in 1983.[3] This increase could be the result of more accurate reporting and recording of suicides over the period, or a true increase in the rate of youth suicide. Lester (1988) found that 23 of 29 nations had an increase in youth suicide rates in the 1970s, and so it is possible that the increase in youth suicide in Bangladesh is not simply a result of more accurate recording.

No suicide rates are available for Pakistan. In a rare report from Pakistan, Ahmed and Zuberi (1981) estimated suicide rates in the city of Karachi for the periods 1959–1963 and 1974–1978 as 0.72 and 0.11, respectively, very low. They did not calculate suicide rates by sex, but the male/female ratios for the absolute numbers of suicides were 2.7:1 and 1.2:1, respectively. Headley (1983) reported data from an unpublished study indicating a suicide rate of 1.24 for Karachi in 1974–1978.

The suicide rate for Sri Lanka in 1980 was 29.0 and for India in 1990 8.9. Murphy (1954) reported that from 1940 to 1952, Hindus in Sri Lanka had a suicide rate of 7.7 while Muslims had a suicide rate of 5.6. Senewiratne and Thambipillai (1974) reported an excess of Sinhalese (primarily Buddhists) and a deficit of both Tamils (primarily Hindus) and Muslims in a mixed sample of completed and attempted suicides from the district of Kandy in the years of 1970 to 1971.

Meer (1976) presented data for the suicide rates of "Indians" in Durban (South Africa) for 1940–1960, but Meer did not distinguish from which country in the Indian subcontinent the "Indians" came. However, only 4.8% of the completed suicides among Indians were Muslim whereas Muslims accounted for 16.0% of the total population. Thus, Hindus were over-represented among the suicides and Muslims under-represented.[4]

Raleigh (1996; Raleigh, Bulusu, & Balarajan, 1990) provided suicide data in England and Wales for immigrants from these nations, and Dr. Soni Raleigh sent me data from which I could calculate suicide rates. The suicide rates for 1988–1992 were 16.4 for those from India, 12.4 for those from Sri Lanka, 8.3 for those from Pakistan, and 4.2 for those from Bangladesh (see Table 5). Therefore, the immigrants from the Islamic nations had lower suicide rates in England and Wales than the immigrants from the Hindu and Buddhist nations.

It is noteworthy that the suicide rate for Indian immigrants in England and Wales are higher than the suicide rate in the home nation, whereas the suicide rate for immigrants from Sri Lanka are lower

[2]These data come from the CIA (2002).
[3]All rates in this article are per 100,000 per year.
[4]Incidentally, Meer also reported that the Muslims had a higher per capita income than the Hindus.

*TABLE 5.* **Suicide Rates of Immigrants from the Indian Subcontinent to England and Wales, 1988–1992 (from Lester, 2000)**

| | Total | Male | Female |
|---|---|---|---|
| Indians | 16.4 | 23.1 | 10.0 |
| Sri Lankans | 12.4 | 13.4 | 11.3 |
| Pakistanis | 8.3 | 11.1 | 5.3 |
| Bangladeshis | 4.2 | 5.4 | 2.9 |

than the suicide rate in the home nation. Usually immigrants to nations have higher suicide rates than the suicide rates back in the home nations.

The high rate of suicide for immigrants from Pakistan is noteworthy. Although a high rate is expected, the rate in England and Wales does suggest that the suicide rate in Pakistan (for which only rates for Karachi were available) may result from undercounting suicides.

## Inner Mongolia

Wang et al. (1997) found that the Muslim Hui ethnic group in Inner Mongolia had a lower suicide rate (only 1.2) than the Mengs (2.4) and the Hans (4.4). The Hui suicides tended to be younger, less educated and less skilled than the suicides from the other ethnic groups.

## Israel

In Israel, Levav, and Aisenberg (1989a) found that Muslim Arabs had the lowest suicide rate as compared to Jews, Druze, and Christian Arabs. However, among teenagers, Kohn, Levav, Chang et al. (1997) found that Christian Arabs had a lower rate of completed suicide than Muslim Arabs, although both groups had lower rates than Jews.

Levav and Aisenberg (1989b) found differences by sex. For the period 1976–1985, male Muslim Arabs and Christians had lower age-standardized suicide rates than Jews and Druzes, but female Muslim Arabs and Druzes had lower age-standardized suicide rates that Jews and Christians. Muslim Arabs of both sexes, therefore, had the lower suicide rates.

## Malaysia

Teoh (1974) reported suicide rates for West Malaysia in 1970 of 23.3 for Indians, 8.1 for Chinese and 1.1 for Malays, which he attributed to the Muslim religion of the Malays. Ong and Leng (1992) reported data for Kuala Lumpur, the capital of Malaysia, for 1985–1986 from which I was able to calculate suicide rates of 10.2 for Indians, 6.0 for Chinese and 0.2 for Malays. Maniam (1988) also found a low suicide rate for Malays as compared to Chinese and Indians in one region of Malaysia[5] Murugesan and Hock (1978) found a low rate also of attempted suicide among the Malays.

Ong and Leng (1992) reported that Malays in Kuala Lumpur were underrepresented in samples of completed suicides whereas the Chinese and Indians were over-represented. The same was true for attempted suicides also. It is interesting to note that this under-representation of Malays is found in Malaysia where Malays are the majority (57% in the mid-1980s) and in Singapore where they are a minority (15%).

[5]The rates of attempted suicide followed a similar pattern.

### Singapore

Lester (1998) reported suicide rates by ethnic group for Singapore for 1984: 17.8 for Indians, 14.6 for Chinese and 2.7 for Malays. From 1955 to 1984, the median suicide rates were 13.1, 12.5 and 1.5 for the three ethnic groups, respectively, and the relative ranking remained stable over that period.

Most research confirms the low rate of completed suicide and attempted suicide in Malays (Chia, 1979a, 1979b; Chia & Tsoi, 1972, 1974; Ko & Kua, 1995; Kok, 1988; Kua & Tsoi, 1985; Lim & Ang, 1992; Peng & Choo, 1990, 1992; Tan, 1986; Tsoi & Kua, 1987), for both sexes and all ages (Kua, Ko & Ng, 2003). The Malays do use different methods for suicide than do the Chinese and Indians (Kua & Ko, 1992).

The ethnic groups differ in other ways in their suicidal behavior. For example, Chia (1981, 1983) found that the Malay suicides had fewer over the age of 60 as compared to the Indians (0% versus 21%), more diagnoses of schizophrenia (36% versus 21%) and more often used jumping (46% versus 32%) and less often used poisoning (0% versus 11%). Suicides in the three ethnic groups also differed in occupational status, major causative factors, and the prevalence of alcoholism and opium addiction.

### South Africa

Gangat, Naidoo, & Wessels (1987) studied a sample of Indian suicides in South Africa and found that Muslims were under-represented and Hindus over-represented as compared to their proportions in the population.

### Comment

These studies within nations are very consistent in their results. Muslim residents of these nations have lower suicide rates than those with other religious affiliations. The available data from a wide variety of nations make these conclusions very robust.

## COMPLETED SUICIDE IN MUSLIM COUNTRIES

Occasional cases of suicide are reported in the forensic and toxicology literature from Islamic countries. For example, El-Khafief (1991) reported an unusual case of hanging from Dubai, Al-Ragheb, Salhab, & Amr (1986) a case of suicide by Xylene ingestion from Jordan, and el-Guindy and Haleem (1971) a case of hanging.

However, this section will review briefly studies of samples of completed suicides rather than individual case reports.

### Bangladesh

Hadi (2005) found a higher suicide rate for women in a rural region of Bangladesh (where the population was 88% Muslim) than for men (8.9 versus 4.2). Yusuf, Akhter, Rahman et al. (2000) tracked down all deaths in Bangladesh between the years of 1996 to 1997 among women aged 10–50 and identified 3317 completed suicides. The unadjusted suicide rate was 8.8 per 100,000 per year with rates ranging in the six regions from 3.5 to 27.0. The suicide rate was higher for married women in all age groups.

### Egypt

In a small sample of completed suicides in Egypt, Okasha and Lotaif (1983) found that the modal suicide was female, 30–39 years of age, middle-class, using drugs for the act and suffering from a depressive illness.

## Fiji

Haynes (1984) reported that, in a sample of completed suicides among Indians in the Northern division in Fiji in 1979–1982, the proportion of Muslims (versus Hindus) was less than their proportion in the population. Karim and Price (1973) found the same phenomenon in an earlier study of suicide in 1971–1972 in Fiji.

## Iran

Farzam (1983) reported on suicides that were autopsied in Tehran from 1964 to 1974. Data on age and sex were not available, but the most common method for suicide was hanging, followed by shooting. The present author calculated a rough estimate of the suicide rate from the data that Farzam presented, and for 1970–1972 the rate was 1.3.

## Jordan

Barhoum (1983) found an average suicide rate in Jordan in 1968–1981 of 1.8. The modal suicide was male, 20–29 years old, married, using poisons, in an urban area and responding to family and marital disputes. Muslims were over-represented as compared to Christians.

Daradkeh (1989a) studied suicide in Jordan for the period 1980–1985. The mean suicide rate was 2.1 – 2.5 for men and 1.6 for women. The rates peaked in men aged 25–24 (3.7) and women aged 15–24 (3.4). The male and female suicides did not differ significantly in age (31 and 28, respectively).

The modal male suicide was single and an unskilled laborer. The modal female suicide was married and a student. Violent methods of suicides were used most often (used by 66% of the men and 50% of the women). The police viewed the majority of the suicides as mentally ill (63%). From 1979 to 1985, the annual suicide and homicide rates were not significantly associated (Daradkeh, 1989b).

Daradkeh (1989b) found a complex seasonal pattern of suicide for the period 1980–1985. The peak months were from March through September, with troughs in October and February and a subsidiary peak in December. There were no differences by sex or by method in this seasonal distribution.

Al-Ragheb and Salhab (1986) identified 329 deaths from pesticides in Jordan during 1973–1985, primarily using organophosphates (94%). The majority were suicides (61%), with 109 males and 92 females. The rate for suicide by pesticides for this period can be estimated roughly to be 0.7. The modal suicide was 12–19 years old, unmarried, and a student, and died soon after ingestion. The peak month was April. The young female suicides were typically under stress resulting from sexual activity (for example, they were pregnant or no longer virgins).

## Kuwait

Ezzat (1983) reported on suicide in Kuwait in 1978 and 1981. In 1981, the suicide rate was 4.35, with a rate of 4.5 for men and 4.1 for women. The Kuwaiti rate was 2.3 and the non-Kuwaiti rate was 5.8. Among the non-Kuwaiti suicides, the most common country of origin was India, followed by Palestine, Iran, Egypt, Jordan, Pakistan, Europe, Iraq, Sri Lanka, Oman, and Lebanon. The modal suicide was a male, aged 20–39, using drugs/poisons.

## Iraq

Al-Kassir (1983) provided some data on suicide in Iraq. The modal suicide was male, 18–30 years old, living in an urban area and using a gun. The estimated suicide rate for 1969–1971 was 0.15.

## Nigeria

Asuni (1962) studied suicide in Western Nigeria for 1957–1960, and estimated the suicide rate among Muslims to be 0.3 as compared to 0.9 for Christians and 0.7 for pagans. Asuni attributed the lower suicide rate among Muslims to the lesser disruption in traditional African living that Islam demands as compared to Christianity with its Trinity, sacraments, monogamy, taboo on amulets, and so on.

## Pakistan[6]

Ahmed (1983) reported on suicides in Jinnah in 1976–1978. The modal suicide was female, married, aged 15–24, using insecticides and experiencing family problems. The suicide rate was estimated to be about 1.2.

In Peshawar, Pakistan, in 2001, Ali, Bashir, Hussain, et al. (2003) identified 89 unnatural female deaths of which only 2 percent were from suicide.

Khan and Reza (2000) identified 306 suicides reported in an English-language broadsheet (DAWN) during 1996–1997 in Pakistan. The modal suicide was male (68%), under the age of 30 (82%), single (58%), committing suicide for domestic reasons (78%), and ingesting poisons (39%). The men were more often single and the women married. The women were also a little younger than the men (23.4 versus 26.8 years). The men were most often unemployed and the women housewives.

Ahmed and Zuberi (1981) studied completed suicides in Karachi for the years of 1974 to 1978. The suicides were primarily male, with a rate of 0.11 per 100,000 per year. Ashraf (1964) found a rate of 0.72 for 1959–1963. The modal suicide used drugs/poisons and was reacting to domestic troubles.

## Sudan

Elsarrag (1968) estimated that the suicide rate in Northern Sudan was less than 1. His impression was that the typical suicide was a single woman, aged 17–30, acting impulsively for a trivial reason, and using burning (kerosene or petrol). He noted that the young age of the modal suicide was to be expected since life expectancy at the time was less than 40 years. He also speculated that the use of burning was an act of self-mutilation associated with the experience of mutilation of the genitals as a young girl. He noted also that men who killed themselves by burning were more likely to be circumcised.

Abdel-Hafeiz and Nadim (1978) identified ten completed suicides in Khartoum Province, Sudan, in a four-year period, primarily by burning, giving a suicide rate of 0.2.[7]

## Syria

Al-Hakim (1983) reported on completed and attempted suicide combined, and so his data are presented in the section on attempted suicide. The modal completed suicide was equally likely to be male or female, and the most common age was 15–24.

## Turkey[8]

Sayil and Devrimci-Ozguven (2002) reported a suicide rate for Ankara in 1998 of 9.9 for males and 5.6 for females, based on the population over the age of 15.

[6]For a brief survey of suicide and attempted suicide in Pakistan see Khan (1998).

[7]They did not report specifically on religion, but they say that 92% of the 10 completed suicides and 90 attempted suicides combined were Muslim.

[8]For a brief review of Turkish studies on suicide and attempted suicide see Sayil (1997).

This makes the rates difficult to compare with typical suicide rates based on the total population. The rate peaked for men aged 75 and over with a subsidiary peak for men aged 45–54; for women the rate peaked for women aged 15–24 with a subsidiary peak for women aged 65–74. Hanging was the most common method for suicide in both men and women.

Bilici, Bekaroglu, Hocaoglu et al. (2002) calculated a suicide rate of 2.6 in Trabzon in Turkey in 1995, more than twice the official rate of 1.1. The male rate was 3.3 and the female rate 1.9. Unmarried people had a higher suicide rate than married people, and the rates were highest for those aged 15–24 and 25–34. Hanging was the most common method.

Goren, Gurkan, Tirasci et al. (2003) studied 56 suicides under the age of 19 in one province in Turkey. The modal suicide was 18 years old, female, using firearms at home in response to family conflict.

## ATTEMPTED SUICIDE IN MUSLIM COUNTRIES

Several studies of attempted suicides in Muslim nations have also been published. This section reviews these papers.

### Bahrain

Metery, Matar, Hamadeh et al. (1986) identified every attempted suicide in Bahrain in 1981 and calculated a rate of 40.2 per 100,000 per year. The modal attempter was female, unmarried, aged 15–19, making a first attempt with drugs, especially Benzodiazepines. As compared to matched controls, the attempters reported more depression, headaches and pain, and had made more visits to health centers in the prior six months.

Al-Ansari, Hamadah, Matar et al. (1997) studied 67 youths aged 15–24 attempting suicide by overdose in Bahrain. The modal attempter in this group was female, single, Bahraini, a student, from the lower classes and using Paracetamol.[9] The rates of attempting suicide were 106.5 in Bahraini youth, 39.3 in non-Bahraini, and 89.8 overall.

Al-Ansari, Hamadeh, Matar et al. (2001) compared 100 Bahraini youth (aged 15 to 24 years) who had attempted suicide by overdose with medical patients matched for age and sex. The modal attempter was female, aged 15–18, single, not yet in university, and low in social class. The attempters, as compared to the controls, more often were unemployed, from a non-intact family, involved in a boy-girl relationship, and cigarette smokers. The attempters more often had a highly educated mother, had recently failed an exam, and had few friends. They did not differ in: father's education, social class, the death of father, arguments with friends, drug and alcohol use or problems with the law, finances, or teachers.

### Egypt

Okasha and Lotaif (1979, 1983) studied attempted suicides in one region of Cairo in the year of 1975 and calculated a rate of 38.5. The proportion of Muslims (versus Coptics) matched the proportions in the general population. The modal attempter was male, aged 15–24, single, a student, attempting suicide in May, from the lower or middle classes, diagnosed with a depressive illness, and taking an overdose.

### Iran

Farzam (1983) looked at 8,928 attempted suicides by poisons in Tehran in 1970–1972. The modal attempter was

[9]Paracetamol is called Acetominophen in the United States.

female, aged 15–19, with family problems, most often using opium for the attempt (followed by insecticides). Single and married individuals were equally represented. Estimates of the rate of attempting suicide were 146 in 1970, 87 in 1971 and 96 in 1972.

Gharagozlu-Hamadani (1972) reported that the modal suicide attempter in Shiraz was female, single, aged 20–29, with a high school education, a student, diagnosed with a depressive reaction, using poison (most commonly opium), after a quarrel with a family member or employer.

Bordbar, Mesry, & Yousofic (1975) reported on 200 cases of opium poisoning (the most popular method for attempting suicide) during the period 1968–1972. The mortality rate was 1.5%.

## Jordan

Barhoum (1983) found an attempted suicide rate in Jordan for 1968–1981 of about 7.1. The modal attempter was female, aged 10–19, single, using poisons, in an urban region and responding to family and marital disputes. Muslims were over-represented as compared to Christians.

Daradkeh (1988a) identified all treated attempted suicides in Jordan for 1980–1985. The rate was 11.3 in 1980, rising to 19.4 in 1985. The modal attempter was female, aged 18–27, and a single student, using ingestion, after a family dispute. Daradkeh (1992) found that the incidence of attempted suicide declined during Ramadan in 1986–1991 as compared to the months preceding and following Ramadan.

Saadeh, Ammari, Zaidan et al. (1995) studied all attempted suicides by solids/liquids in one hospital in North Jordan throughout a four-year period: 709 cases were admitted, and 647 medical records reviewed. These accounted for 8% of all admissions, and produced an annual rate of 127. Among adolescents (15–19 years old) the rate was 416. The modal attempter was female, aged 15–19, a student, and single. The most common substance used was Paracetamol, but household products (such as bleach, kerosene and pesticides) were also common. Only 17% of the patients received a psychiatric diagnosis, and the most common diagnosis was depressive illness.

## Kuwait

Ezzat (1983) reported on attempted suicide in Kuwait in 1978 and 1981. The modal attempter was female, aged 15–19, using analgesics and responding to adversity/stress. In 1981, the rate for Kuwaitis was 12.5 and for non-Kuwaitis 10.3. Among the non-Kuwaitis, the most common country of origin was Egypt (whose emigrants had the highest rate—42.9), followed by Palestinians and Indians.

Fido and Al-Mughaiseeb (1988) reported on 90 attempted suicides that were referred for psychiatric consultations in Kuwait. The modal patient was female, aged 16–25 years, with an adjustment disorder, and overdosing (most commonly with Paracetamol).

Suleiman et al. (1986, 1989) also studied attempted suicides in Kuwait. The modal attempter was female, under the age of 30, using self-poisoning, reacting to family arguments, and a non-Kuwaiti Arab. After a two-year follow-up, 20% had repeated their attempts. The repeaters were more likely to be housewives and clerical workers, but did not differ in religion (Muslim versus Christian), age, sex, nationality, marital status, or education.

Emara, Abdella, Saadah et al. (1988) reported on 227 attempted suicides by overdose and calculated rates for the population aged 15–50 of 95 for Kuwaitis, 47 for non-Kuwaitis, 81 for females and 24 for males. The modal attempter was female, non-Kuwaiti, aged 20–25, and

using just one drug, most commonly acetaminophen.

## Muscat and Oman

Zaidan, Burke, Dorvio et al. (2002) examined people coming to urban hospitals in Oman with deliberate self-poisoning. The modal patient was Omani, female, single, aged 20 to 30 years, using non-steroid analgesics (especially Paracetamol), responding to family conflict and, for the Omanis, a student. Only 19 percent were judged to have a history of behavioral or mental disorders.

The rate of deliberate self-poisoning for Omanis rose from 1.9 per 100,000 per year in 1993 to 12.8 in 1998. Zaidan and associates speculated that this dramatic increase was a result of the cultural stress due to rapid modernization following the increase in oil revenues. There have been cultural changes; including a switch to a class system based on wealth (rather than tribal identification), a growth in individualism, a switch from dependence on the extended family to the nuclear family, high unemployment (especially among youth), and urban drift.

## Nigeria

Odejide, Williams, Ohaeri, et al. (1986) found fewer Muslims (as compared to their proportion in the population) among a sample of attempted suicides in Ibadan, Nigeria, in a six month period in 1964.[10]

## Pakistan

Ahmed (1983) reported that the modal suicide attempter in Jinnah in 1976–1978 was female, single, aged 15–24, experiencing family problems (followed closely by unhappy love affairs), and using tablets (closely followed by insecticides).

Khan and Reza (1996, 1998; Khan, Islam & Kundi, 1996) studied 447 attempted suicides admitted to a hospital in Karachi. The modal attempter was 16–29 years old, female, with 12 or more years of education, who used self-poisoning (especially Benzodiazepines), after family conflicts, and diagnosed as having an acute situational stress reaction. The female attempters were younger more often married and less often single, less educated, and had experienced more in-law conflicts and fewer boy/girlfriend conflicts than the male attempters.

Jamil (1990) studied cases of acute poisoning in the Jinnah Postgraduate Medical Center over a ten-year period and identified 1,330 attempted suicides (some 70% of the total cases). Twenty-five of the patients were repeating attempts.

Ahmed and Zuberi (1981) studied attempted suicide in Karachi for 1974–1978. The attempters were primarily male, with a rate of 0.73 per 100,000 per year. Ashraf (1964) reported a rate of 0.82 for 1959–1963. The modal attempter used sharp instruments or drugs/poisons and was reacting to domestic troubles.

## Saudi Arabia

Malik, Bilal, Mekki et al. (1996) studied drug overdoses in the Asir region of Saudi Arabia for 1989–1993. There were 46 attempted suicides in the sample, with a modal attempter being Saudi, female, under the age of 40, single, with 6–12 years of education, with a depressive illness or a personality disorder and using analgesics or anti-inflammatory drugs.

Daradkeh and Al-Zayer (1988) studied Saudi employees and dependents of the Arabian-American Oil Company in 1986. The modal attempted suicide was female, with a mean age of 24 years, married, and a housewife. The attempt was unplanned,

[10]Eferakeya (1984) reported on a sample of attempted suicides in Benin City, Nigeria, but did not note the religion of the patients.

due to marital or parental conflict, using non-opiate analgesics. The most common psychiatric diagnosis was acute reaction to stress, and there was rarely a history of prior attempts. A desire to die and attention seeking were equally common motives. The attempted suicide rate for this sample was 20.7 – 15.4 for the employees and 22.3 for the dependents.

Al-Shlash, Warnasuriya, Al-Shareef et al. (1996) reported that 3.7% of burn patients seen at a hospital in Saudi Arabia were suicidal. Suicidal patients were more likely to die than accidental cases (31% versus 6%). The suicidal patients were almost all females. There have been many reports of burn patients in Saudi Arabia, but they typically do not distinguish between native Saudis and foreign workers in the data presentation. Also, suicidal behavior involving burns is not a common method for suicide. In the report by Al-Shlash and colleagues only 16 of the 435 burn patients in an eight-year period were suicides, an average of two per year.

Mahgoub, Al-Freihi, Al-Mohaya et al. (1990) reported on 15 Arab and 16 Asian attempted suicides in one province of Saudi Arabia. The majority of attempters were young (under the age of 25) and reacting to interpersonal conflicts. The use of drug and poisons was especially common among the female attempters, with males using more violent methods (such as jumping and stabbing). Mahgoub noted that, since attempted suicide is a crime in Saudi Arabia and since immigrants can be deported for attempting suicide, many attempted suicides may avoid medical facilities.

## Sudan

Abdel-Hafeiz and Nadim (1978) found that the modal attempted suicide in Khartoum Province in 1971–1975 was aged 10–29, unemployed, and used burning. The rate can be estimated to be 1.9.

## Syria

Al-Hakim (1983) presented data on completed and attempted suicide combined. The average rate was 1969–1972 was 4.9–3.3 for Syrians and more for other nationalities (for example, 10 for Palestinians). The modal attempter was female, aged 15–24, living in an urban area and using solids/liquids. Overall, for all suicidal acts, Muslims were over-represented (as compared to Christians), and the Sunnis were over-represented among the Muslim sects.

## Turkey

Sayil, Berksun, Palabiyikoglu et al. (1998) found attempted suicide rates in Ankara of 107 in 1990 and 113 in 1995. The modal attempter was female, 15–24 years of age, unemployed, single, using an overdose, and precipitated by conflicts with the partner or the family.

Sayil and Devrimci-Ozguven (2002) studied the attempted suicides in a region of Ankara and calculated rates of 57.9 based on the population over the age of 15. The rate was 31.9 for men and 85.6 for women. The male rate peaked for men aged 45–54, whereas the female rate peaked for women aged 15–24. Self-poisoning was the most common method for men and women. Men were more likely to use alcohol as a supplement than were women.

Bilici, Bekaroglu, Hocaoglu et al. (2002) calculated attempted suicide rates for Trabzon for 1995, estimating the rate to be 31.5–16.7 for men and 45.3 for women. The rate was highest in those aged 15–24, those unmarried, and the unemployed. The most common method was an overdose. Bilici and colleagues compared the characteristics of the completed and attempted suicides in this town. The completed suicides were more likely to be male and of low economic status; they were

older, less often used overdoses, and less religious.

## SUICIDAL IDEATION

A few studies have surveyed samples of individuals for the prevalence of suicidal ideation (past and present).

### Egypt

Okasha, Lotaif, & Sadek (1981) surveyed Egyptian medical students and found that 4.0% had suicidal ideation in the past year, and 0.4% had attempted suicide. Suicidality was more common in the females and if they had symptoms of depression, life stress or a medical illness.

### Kuwait

Lester and Abdel-Khalek (1998a; Abdel-Khalek and Lester, 2002b) found no differences in current suicidal ideation between Kuwaiti and American college students, although the Kuwaiti students obtained higher overall depression scores on a self-report inventory. However, in a later study, Lester and Abdel-Khalek (1998b) found that Kuwaiti students reported less prior suicidal ideation (but no difference in prior suicidal threats or attempts).

### Nigeria

Lester and Akande (1995) found no differences in current suicidal ideation between Muslim Yoruban (Nigerian) students and American students.

### Sudan

Goldney, Harris, Badri et al. (1989) surveyed small numbers of women in Sudan and found that 27% of university students and 59% of displaced women has thought about suicide in the past few weeks according to questions on the General Health questionnaire. However, Goldney did not report the religion of the women, but both samples were obtained from near Khartoum.

### Turkey

Lester, Castromayor, & Icli (1991) explored the association between locus of control, depression and suicidal ideation in American and Turkish students. 26.5% of the Turkish student students had considered suicide and 3.1% had attempted suicide as compared to 47.5% and 10.0% of the American students, respectively. A history of suicidal ideation was associated with depression scores in both groups. For the Turkish students, a history of suicide ideation was associated with higher external locus of control scores, but the association was not significant for the American students. For the American students, a history of attempting suicide was associated with higher external locus of control scores, but the association was not significant for the Turkish students.

Eskin has carried out several psychological studies of suicidality in Turkish individuals. For Turkish people living in Sweden, Eskin (1993) found that suicidal ideation was associated with hopelessness, a negative self-evaluation and hostility. Suicidality scores were also associated with perceived social support but not with assertiveness.

Eskin (1995a) studied high school students in Turkey and found that a history of suicide attempts (reported by 10.9% of the students) was associated with having previous psychiatric contacts, perceived family support, psychiatric disorder in family members, parental divorce, completed suicides in the family, and gender.

## ATTITUDES TOWARD SUICIDE

A few studies have examined attitudes toward suicide.

### Ethiopia

Alem, Jacobsson, Kebede et al. (1999) compared the attitudes of Christians and Muslims in Ethiopia and found the Christians to be a little more negative toward suicide than the Muslims (for example, seeing suicides as deserving little sympathy). The two groups also proposed slightly different causes for suicide, with the Muslims viewing family conflict as more relevant.

### Nigeria

Lester and Akande (1994) found that Yoruban students had a more negative attitude toward suicide than did American students and, by Western standards, had less accurate knowledge about suicide. Lester and Akande (1997) found also that these Yoruban students held more negative attitudes toward suicide than did Zambian Lozi-speaking students (who were predominantly Christian).

### Turkey

Lester and Icli (1990) surveyed American and Turkish students about their attitudes toward suicide. Overall, the Turkish students had been less preoccupied with suicide in the past, but the two groups had similar views about the morality of suicide. On a "myths about suicide" scale developed by Western suicidologists, the Turkish students had a less accurate knowledge score. Lester, Icli, & Castromayor (1994) found that knowledge accuracy scores for the Turkish students were not associated with age, sex, depression scores, or external locus of control scores.

Sahin, Batigun, & Sahin (1998) studied the responses of urban high school and university youths to the Reasons for Living Inventory, but they did not correlate the scores with any measures of suicidality. Sahin, Sahin, & Tumer (1994) found that the stereotypes of suicide that respondents held varied with the age and sex of the hypothetical suicide and with the age and sex of the respondent.

## RESEARCH ON SUICIDAL BEHAVIOR

Several researchers have begun to test hypotheses about suicidal behavior in Islamic countries, exploring whether Western research findings on suicidal behavior are replicated using Muslim samples.

### Kuwait

Lester and Abdel-Khalek (1998b) found that current and prior suicidality were associated with measures of psychological disturbance (depression, obsessive-compulsiveness, and hopelessness) in both Kuwaiti and American college students. For the Kuwaiti students, suicidality was associated also with an external locus of control and with sex (with females reporting greater suicidality).

Abdel-Khalek and Lester (2002a) found that suicidality (current and past) was associated with depression and obsessive-compulsive scores but not with manic scores in a sample of Kuwaiti university students.

Abdel-Khalek and Lester (2002b) found similar positive associations between suicidality and measures of psychopathology (ego-grasping orientation, death obsession, pessimism, optimism, obsession-compulsiveness, and anxiety) in Kuwaiti and American university students.

### Nigeria

Working in an Adlerian framework, Akande and Lester (1994a) found that

sibling size, but not birth order, was associated with suicidal ideation in Muslim Yoruba students in Nigeria.

Akande and Lester (1994b) found that suicidal ideation in Yoruban Students was associated with depression scores and belief in an external locus of control, whereas suicidal ideation was associated only with depression scores in American students.

### Turkey

Eskin (1995b) found that Turkish high school students were more accepting of a suicidal peer than were Swedish students, yet the Swedish students had a more liberal general attitude toward suicide. Among the Turkish high school students, females were more accepting of suicidal classmates and suicide in general than the males (Eskin, 1992).

Agargun and Kara (1996) found that psychiatric patients with pure panic disorder were less suicidal than those with co morbid diagnoses.

### Comment

It is very important that researchers in other countries replicate results reported elsewhere. It should not be assumed that, for example, results found in research on suicidal behavior in Western nations should automatically apply in Arab or Islamic countries. These few studies reviewed above do, on the whole, support findings from other nations, but this may not always be the case.

## DISCUSSION

The first issue is whether the reported completed and attempted suicide rates in the Muslim world are valid. In many Islamic nations, completed suicide and/or attempted are considered criminal offenses. Furthermore, in general, Islam forbids suicidal behavior (Al-Najjar, 1976; Chaleby, 1996).[11] Thus, there is a strong possibility that completed and attempted suicidal behavior is covered up, that is, not reported or misclassified, and so rates of completed and attempted suicide in Islamic countries may be unreliable. It is important in future research to explore to what extent suicidal behavior, fatal and nonfatal, is miscounted in Islamic nations.

At the present time, there is a large multi-center study being conducted in several European countries trying to adopt a standardized procedure for counting and describing the characteristics of attempted suicides (Kerkhof, Schmidtke, Bille-Brahe et al., 1994). This makes the comparison of attempted suicide from nation to nation much more reliable and useful. Similar kinds of projects would be most useful, both for completed and attempted suicide, in Islamic countries.

Islam is not a unified religion, and there are competing sects. Another issue that has not been addressed by scholarly research to date is whether there is a difference in the suicide rate of Sunni and Shia Muslims (and of other sects such as Ahmadi, Alawai, Druze, Ismaili, Qadiani, Sufi, and Yezidi), or within each sect a difference between the types (e.g., the orthodox Hanafi).[12] There has been a long theoretical and empirical debate in the West over whether Protestants and Roman Catholics differ in their suicide rates, based upon differences in social integration, social regulation and attitudes toward suicide. A similar debate would seem to be

[11] Although attempting suicide can also be viewed as criminal behavior and reported to the police in Islamic countries, the presence of psychiatric disorder can result in treatment rather than punishment (Chaleby, 1996). Gharagozlu (1974) notes that attempted suicides were treated and sent home in Iran, and not sent to psychiatric hospitals, at least in the 1970s.

[12] Or between those with different religious-political differences as in the Muhammadiyah and Nahdlatul Ulama in Indonesia.

pertinent to suicide among Muslims from different sects.

A similar issue can be raised regarding the "Arab" world. The Arab world is not a single homogenous region. At the very least, three separate regions can be identified: the Maghreb (Libya, Tunisia, Algeria, and Morocco), the Mashreq (from Lebanon and Egypt to Oman), and the periphery (Mauritania, Yemen, Somalia and Djibouti). It would be of great interest to compare suicidal behavior over these regions (or using other divisions of the Arab world).

The Muslim world is even more diverse. For example, Islam in Indonesia, until recently, included many aspects of Indonesia's Hindu and pagan past (Anon, 2003). Today, there is a division between the Santri (orthodox Muslims) and the Abangan (Muslims who incorporate folk religion). Each Islamic nation has its own ethnic mix and variation in the sects and practices of Islam. The impact of these divisions or suicidal behavior needs to be explored.

What are the explanations for the low rate of suicidal behavior among Muslims, assuming it is a valid phenomenon? Ineichen (1998) suggested that Islam is much firmer about the sinfulness of suicide than Hinduism, which Ineichen claims is relatively ambivalent about it. The same may be true for Islam versus some Christian sects.

Kamal and Loewenthal (2002) gave Hindus and Muslims living in London (England) a questionnaire containing reasons for living. The Muslims endorsed moral and surviving-coping reasons for not committing suicide more than the Hindus did, and obtained a higher overall score. Thus, the Muslim respondents did seem to be more morally opposed to suicide than the Hindus were.[13]

Within particular nations, there are speculations about the cause of the low rate of suicide among Muslims. For example, Peng (1992) suggested that the Muslim Malays in Singapore were the most contented of the three ethnic groups (Malay, Chinese, and Indian). He argued that Islamic values impose an injunction against materialism and the accumulation of wealth, so that the need to achieve and succeed is less strong among the Malays. He suggested also that the Malays tend to be more fatalistic and resigned to fate and so less depressed by poor outcomes in life. Self-criticism is rare, and failure is more acceptable, attitudes that would protect against suicide. It is important in future research to seek for objective data to back up such speculations.

An interesting finding was that, in Jordan and Syria, the limited data suggested that Christians in those countries have a lower incidence of completed and attempted suicide than the Muslims. Al-Hakim (1983) reporting on Syria, suggested that the Christians there have strong social cohesion and, although a minority, share the many of the same values as the Muslims and are peaceable and well ordered. Therefore, they do not attract "negative attention" (p. 303). Discrepancies from the general rule provide important examples to test hypotheses about the causes of differences in suicidal behavior between Muslims and non-Muslims.

Muslim nations differ from other nations in many social and economic ways. For example, in Simpson and Conklin's (1989) factor analysis, the percentage of Muslims in a nation was associated with the sex ratio, the percentage of women in the labor force, and the percentage of the population over the age of 65. It may be these socioeconomic factors that are the cause of the difference in suicide rates.

Alternatively, as Lester (1999–2000) has suggested, it may not be these individual variables that determine the suicide rate. Rather it may be that there are broader, more abstract social qualities (Durkheim's

[13]The two groups did not differ in suicidality.

(1897) notion of social integration and social regulation) that determine the suicide rates of nations, and these single variables are merely manifestations of these broader social qualities. For example, the divorce rates and suicide rates of nations are strongly associated. Rather than interpreting this association as "divorce causes suicide" at the societal level, it may be that the divorce rate is a manifestation of the level of social integration of the societies and that it is social integration that causes the suicide rate.

Clearly, a great deal of theorizing and research is needed before we can understand the occurrence and characteristics of suicidal behavior in Muslims and in Islamic nations. However, the large number of relevant references identified for this review is encouraging for it shows that the foundations for this future research have already been laid.

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