Quantifying the Colonized/Colonist Relationship: Suicide as a Comparative Measure of Stress in Gibraltar

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Twentieth-century work in colonial theory emphatically rejected the 19th-century linear model of colonialism as a process in which societies were subjected to a “civilizing” influence by the “superior” European culture. The first replacement models arose with decolonization and were often driven by the experiences of the colonized themselves (for example, Memmi 1969, Cabral 1979, Fanon 1985 [1952], and, for an overview, Young 2001). These models characterized colonialism as a bipolar relationship rooted in inequities of power and racism and imposing European ideology and epistemology. Spurred by the work of Foucault, studies using these models postulated that a group’s position in the colonial spectrum dictated its experience of disease and ill health, and some suggested that the imposition of imperial policies impinged on the stasis achieved before the coming of the colonizers (Vaughan 1991, Lyons 1985, Keller 2001). A second set of replacement models builds on the previous ones but suggests that power did not rest solely with the colonists and structures the colonial relationship as an interdigitation of colonist and colonized characterized by “tensions of empire” (Stoler 1989, Cooper and Stoler 1989, Thomas 1994, Arnold 1993). These tensions are seen as including aggression and resistance, the stress of being in a coercive position, differing ideologies among the colonizers, the threat of assimilation by the colonized, and the strain of maintaining white male supremacy (Cooper and Stoler 1989).

To date, these research models have rested almost entirely upon discourse, and for many reasons no one has sought to test them empirically.2 While the colonial powers of the nineteenth century amassed statistics on troops stationed at home and abroad, their primary emphasis was on troop efficiency associated with manpower. It was only under rare circumstances such as a devastating epidemic that colonial authorities became directly interested in the health of the local host population [see, for example, Sutherland 1867]. Contemporary scholars interested in the retrospective study of colonial health face the daunting task of locating a site in which high-quality data of sufficient temporal depth exist for both colonized and colonizer groups. Further, there is the issue of the unusual demographic structure of the military communities that formed the backbone of colonial societies, which precludes simple comparisons [see figs. 1 and 2], for example, in the 19th-century Gibraltar garrison adult males outnumbered their female counterparts ten to one, and infants and children made up less than 2% of the community at any point in time [Padiak 2003]. There is also the possibility that colonists have an inherent advantage because they have been selected for better health by meeting or exceeding minimum standards for height, weight, chest girth, and absence of defects and are free of any apparent afflictions [the “healthy warrior effect” [Haley 1998]]. Finally, there is the issue of the questionable merit of comparisons of mortality/morbidity rates of two populations whose immunological histories radically differ because of their experiences in distinct ecological settings. Comparing a transplanted group with no history of exposure to a novel-pathogen-loaded environment with an indigenous group that has had undergone generations of adaptation to that particular niche raises other substantive issues underlying the process and by-products of colonization.

The present study addresses and/or circumvents these problems. The confluence of geography, history, human agency, and scientific opportunism has made Gibraltar an unusually rich venue for the study of colonialism (Sawchuk, Burke, and Padiak 2002). First, as a British colony since 1704, Gibraltar has developed two distinct identities: as a home for some 20,000 Gibraltarians and as a strategically situated naval port and garrison town for members of the British forces. Second, the colonial authorities developed and maintained an excellent system for the registration of vital events for both civilian and military communities from 1869 on [see Sawchuk 2000 for details]. Third, Gibraltar is large enough to provide the researcher with sufficient numbers for mean-

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1. This paper was presented before the American Association of Physical Anthropologists, Buffalo, N.Y., April 2002. The research was supported in part by the Social Sciences and Humanities Research Council of Canada.

2. Philip D. Curtin [1989] has sought to measure the effect of empire building on French and British troops sent abroad to maintain the outposts of their respective empires, but he focuses on the “cost of relocation,” using differences between the standardized mortality rates of home populations and their counterparts among men in garrisons abroad.
In meaningful statistical analysis and yet small enough to be manageable in terms of time and resources. Further, its limited size precludes health differentials due to differences in local ecology. Fourth, as part of southern Europe Gibraltar did not confront the British colonizer with a radically different ecological and pathogen environment as did colonies in Africa or the Far East. Finally, to avoid the potential confounding influence of selection for physical health, we employed a proxy measure of psychosocial well-being. Nineteenth- and early-twentieth-century troops were examined only for physical qualities and not for psychosocial ones. Reasoning that colonialism juxtaposes two or more populations and that causes of mortality indicative of stress on the individual would test the models of colonialism, we chose to assess the rates of suicide in the two populations over time.

**Fig. 1.** Structure of the civilian community of Gibraltar in 1878.

**Gibraltar’s Two Solitudes**

During the study period, the Rock had two distinct communities separated by language, religion, place, and worldview—the civilians and the military. The civilians shared a biological and cultural heritage dating back to 1704, when the territory fell under British control. Their heritage reflects a fusion of Mediterranean, North African, and European influences, coupled with long-term experience of living in a military garrison and colonial outpost.  

Fiercely loyal to the British flag and politically sensitive to their northern Spanish neighbours, Gibraltarians are neither British nor Spanish in character. Their distinctive ethos derives in part from life on a small, largely uninhabitable mass of limestone that offers little in the way of comfort. Owing to the fact that the greater part of the Rock is impossible to cultivate, the inhabitants of Gibraltar have depended on provisions imported from the Spanish mainland, the Barbary coast (Morocco), or abroad. Until recently, the little land suitable for building was occupied by naval or military works, forcing the civilian population into a limited space.

At the beginning of the study, in 1878, there were about 18,000 Gibraltarians (approximately 85% Roman Catholics, 7% Protestants, and 8% Jews). Despite religious differences, Gibraltarians were a highly cohesive group, living in a small-scale community in which face-to-face meetings were a daily occurrence. For the vast
majority of Gibraltarians life was shaped by long-term communal residence in multifamily dwelling units known as “patios.” A patio was typically a three- or four-storey building surrounding a central courtyard that was the focus of much of everyday life. The sharing of vital resources [such as potable water, a privy, the laundry area] brought people of various backgrounds into close proximity, cutting across religious and class differences. Patio membership entitled an individual or a family to be part of a support network for coping with sickness, unemployment, and other forms of stress.

The native Gibraltarians had to share their tiny piece of land with a very large and dominant presence: the British military. Gibraltar was the second-largest colonial garrison, with some 4,000–6,000 men at any one time. In contrast to the civilian community, the military segment of Gibraltar was a highly transient group. Gibraltar was an outpost where fresh recruits were stationed while they adjusted to a warmer climate before going on to Egypt, India, or Jamaica. The military was composed of men from 20 to 30 years of age, generally drawn from the unskilled classes of urban Britain. Almost all of them were unmarried, as permission to marry was given to few rank-and-file men and then only after six years’ service. The men of the military were torn away from their immediate and extended families, and the regiment was the soldier’s “family” and support when stationed away from home.

**Suicide**

Just over a century ago, Emile Durkheim published his seminal work on suicide (1951 [1897]), which hypothesized that the frequency of suicide in populations varied with economic circumstances, demographic profile, and social capital. Since then, generations of social scientists have laboured to establish correlations of marital status, economic conditions, job status, religious commitment, age, sex, and social support with suicide rates (Stack 2000, Gibbs 2000). Broadly speaking, when demographic variables such as age and gender are controlled, a rising level of suicide indicates a declining sense of well-being (Tausig and Fenwick 1999, Naroll 1969, Kraus and Tesser 1971). There are two significant precedents for using suicide to assess stress in a population. Durkheim himself developed the “coefficient of aggravation” and the “coefficient of preservation” as comparative population or subpopulation indicators. Both coefficients were the ratio of suicides in one group relative to another, stan-
standardized to unity [Durkheim 1951 (1897): 132–35]. A ratio of 2.0 meant that the tendency to suicide for the numerator group was 2 and that of the denominator group was 1. He termed this the “coefficient of preservation” for the numerator group. If the coefficient was less than unity, then the numerator group was suffering a greater tendency to suicide, and he termed this the “coefficient of aggravation.” Despite the abiding influence of Durkheim’s work, contemporary researchers have not carried this index forward. Raoul Naroll (1969) also recognized the value of suicide as a measure of the “sickness” of a society through the frustration of individuals’ desires and rights and considered it the only statistically dependable measure of this sickness. Kraus and Tesser (1971: 227) built upon Naroll’s work and suggested that suicide levels in a society might be predicted from thwarting disorientation traits in that society.

Our research design employs suicide rates to test different experiences of colonization from 1878 to 1945 in Gibraltar. From our knowledge of conditions in Victorian Gibraltar, we knew that certain aspects of the colonial model were in place. There was a visible ethnic difference between the Gibraltarians and the British colonizers. Politically, the Gibraltarians were powerless; decision making was vested in the governor, a military man appointed in London. No elected assembly existed in Gibraltar until 1922, when a city council was formed. Throughout colonial times there was a wide array of restrictive laws designed to put the needs of Gibraltar as a fortress for 5,000 men ahead of those of Gibraltar as a home for 20,000 people. Accounts of experiences of the Gibraltarian people under colonial rule (Preston 1946; Finlayson 1991; Sawchuk 1992, 1993, 1996, 2000) have emphasized the binary model of power and powerlessness. As the former governor Sir W. Jackson remarked, “Such is the divide between the military and civilian community—a fault common in most British colonial societies of the nineteenth century—that Gibraltarians, no matter how eminent, were not made welcome” (Jackson 1990: 228–9). Further, the British garrison had preferential access to scarce resources such as housing, plentiful water, and ample fresh and frozen meat. It also had access to free and up-to-date medical care in its own hospital. The troops lived in barracks with sanitary facilities superior to those of many Gibraltarians; barracks had been subject to steady sanitary improvements beginning in the 1870s (Sawchuk, Burke, and Padiak 2002). In contrast, most Gibraltarian dwellings did not have running water until after World War II.

This brief sketch fits the model of the powerless indigenous peoples suffering imperial domination. If only the colonized suffered under colonialism, then one would predict higher suicide levels among the civilians. If, alternatively, the colonists, too, suffered the “tensions of empire,” there might be higher levels of suicide among the troops.

DATA AND ANALYSIS

Our data were drawn from death registration and set against census counts covering 50 years. Comparing suicide rates in different populations is often problematic because of the potential for differential reporting. Although these two populations had separate locations for death registration, the registrar was the same individual at any one time. This singular system eliminated the problems typically associated with interpopulation comparison [Diekstra 1993, Stack 2000]. The death records used the term “suicide” from the beginning of the study period for cases in which the intent was clear, although often the fact of suicide was recorded under the secondary or tertiary cause of death, with the mode, such as gunshot wound, hanging, or cut throat, being the primary cause. There is, however, the potential for underreporting of suicide because of unknown intent [Farberow 1975]. Because Van Poppel and Day (1996), examining nineteenth-century data, found that rates of suicide were low but rates of death from external causes relatively high and suggested that some suicides were falsified as “sudden deaths,” we examined every sudden death due to noninfectious disease. With Gibraltar’s unique topography, these causes of death were usually fracture of the skull [associated with a fall] and drowning. Sudden deaths such as these occurred in the two Gibraltar populations in roughly equal proportions but at relatively low levels. We concluded that there was no evidence of masking and that the number of violent deaths deemed not suicidal in error would be small.

A number of constraints were imposed in the construction of suicide rates in the two communities. First, because suicide is typically positively correlated with age and the military population is almost devoid of aged individuals, our analysis was confined to those below 45. Second, because there were so few military wives, males only were considered. Third, because suicide is negatively correlated with marriage, the analysis was limited to single men. The resultant age-adjusted suicide rates per 100,000 single men were constructed around a series of decennial censuses, with the first period having a duration of only eight years, from 1878 until 1885, and the remaining six being decennial periods running from 1886 to 1895, 1896 to 1905, and so on until 1945 (table 1, fig. 3). In order to compare a rare event such as suicide in the two communities, we took advantage of the properties of the Poisson distribution [Beck and Tolnay 1995] and the z-score test [M. Evans, personal communication]:

\[ z = D/S \]

where \( D = |x_1/n_1 - x_2/n_2| \), \( S = \sqrt{(x_1 + x_2)(n_1 + n_2)/(n_1n_2)} \), \( x_1 \) and \( x_2 \) are the respective suicide counts, and \( n_1 \) and \( n_2 \) are the respective person-years as estimated from the census and the number of years in the study period. A two-sided z score tested the hypothesis that the rates in the military population were distributed the same as in the civilian population, and these are the \( p \) values based on a 95% confidence rate or better.

Over the entire study period, suicides totaled 16 among civilians and 74 among the military population, giving average suicide rates of 13.38 and 28.36 respectively per
100,000 single males aged 15–45. Table 1 shows the suicides by decade and compares the coeval rates in the two communities. Average rates for the two communities over the entire study period proved to be significantly different, with the military community showing a lower measure of well-being ($z = 3.45, p < 0.01$). There was some variability in the nature and scope of community differentials over time. Three time periods (1878–85, 1896–1905, 1926–35) showed differences in suicide rate that were substantial but of borderline significance. Significant differences between the two communities were observed for 1906–15 and for 1936–45.

Two of these time periods showed no significant difference. During the period 1886–95, suicide rates fell in the military as its community went through its “golden age” in Gibraltar ($z = 0.43, p = n.s.$). Twenty years of improvements to garrison life had resulted in acceptable accommodations for the men, with suitable pastimes to break the monotony of duty on the Rock. On the international front, the British were not involved in any of the small wars so common during Victorian times, and the large ones were yet to come. The garrison was the healthiest it had been for the entire century; mortality and hospital admissions for all causes were low (Padiak 2003).

The period 1916–25 captured Gibraltar’s great postwar depression and marked a significant rise in the civilian suicide rate ($z = 1.77, p = 0.042$). The depression struck Gibraltarians particularly hard because it followed a period of relative prosperity attributable to its importance as a coaling station for both the Royal Navy and the merchant marine. It was period of high community stress, with a downturn in mercantile trade, high unemployment, long breadlines, and a currency crisis (Stewart 1967). It was also a time of considerable worker unrest, with demonstrations and strikes (in 1917, 1918, and 1919) over the high price of food and low wages. One indicator of the hardship faced by the civilian population during this period is the dramatic rise in the price of bread, the staple food of Gibraltarians (see fig. 4).

The results of the intracommunity comparisons confirm that the forces driving the lack of difference in the suicide rates in these two periods lie in changes within each community (table 2). When adjacent temporal periods are compared, it is clear that, in the military community, it is the drop in the late 1880s and early 1890s that is the significant change from the consistently high rates. Similarly, in the civilian community, it is the rise in rates in the late 1910s and early 1920s that changes the pattern.

As to the impact of war on suicide rates, the two communities differed in their response to a period of what could be conceived as an interval of protracted stress. For the civilians, the rates showed modest increases but ones that were not statistically higher than in the preceding nonwar periods. For the military, temporal trends were mixed. While suicide rates during World War I increased from 26.1 to 44.6, the values were not significantly different from those of the preceding period ($z = 1.006, n.s.$). The pattern during World War II was markedly different, with a dramatic and significant rise in the suicide rate from 30.4 (1926–39) to 73.8 (1940–45) ($z = 2.67, p < 0.01$). During the war years Gibraltar assumed

**Table 1**

**Intercommunity Comparisons of Suicide Rates in Gibraltar, 1878–1945**

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Military</th>
<th>Civilian</th>
<th>Suicide Rate/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Suicides</td>
<td>Person-Years</td>
<td>N Suicides</td>
</tr>
<tr>
<td>1878–85</td>
<td>9</td>
<td>39,712</td>
<td>1</td>
</tr>
<tr>
<td>1886–95</td>
<td>4</td>
<td>45,320</td>
<td>1</td>
</tr>
<tr>
<td>1896–1905</td>
<td>14</td>
<td>44,410</td>
<td>2</td>
</tr>
<tr>
<td>1906–15</td>
<td>11</td>
<td>38,370</td>
<td>1</td>
</tr>
<tr>
<td>1916–25</td>
<td>8</td>
<td>19,460</td>
<td>5</td>
</tr>
<tr>
<td>1926–35</td>
<td>9</td>
<td>20,900</td>
<td>2</td>
</tr>
<tr>
<td>1936–45</td>
<td>19</td>
<td>38,370</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>236,142</td>
<td>16</td>
</tr>
</tbody>
</table>

**Note:** Suicide rates are expressed as per 100,000 unmarried men aged 15–45.
the role of a military fortress, and most of the civilians were forcibly evacuated. Life in the fortress became increasingly guarded, with the entire territory on a war footing. Movement in and out of the town was strictly regulated; the town gates closed in the evening, and there was an 11 p.m. curfew. Rationing and price controls were imposed. Recreation facilities (a racecourse, football and cricket pitches) disappeared to make way for an airfield. With little real wartime action, isolation, boredom, and monotony set in among the soldiers, and Gibraltar became literally a military prison full of pubs. Drinking was hard, fights were commonplace, and the escalating tensions between the military and civilians resulted in the Rock differently. The military men were stationed there temporarily, for a period averaging between two and three years, while the Gibraltarians were in their home environment. Despite the privileges garnered by the military at the civilians’ expense, it is likely that the strong societal, familial, and religious supports of the Gibraltarian community enabled them to cope very well with the second-class status they had to endure. The people of Gibraltar had long been accustomed to their role as the colonized and had developed reciprocal support systems based on local networks and religious affiliation [Sawchuk 1996, 2000]. Even the single men would have been surrounded and supported by their extended families. Their cradle-to-grave society, supported by strong community identification, stabilized their lives and allowed them to develop a blueprint for surviving in the small space under the control of the colonial government, despite the funnelling of scarce resources away from the patrimonial community. The Gibraltarians’ ethos showed the value of social structure for the preservation of individuals’ and hence the society’s sense of well-being.

Considering the difficult circumstances under which the civilian Gibraltarians lived, it is remarkable that they were able to maintain the stability indicated by their low suicide rates. During Victorian times, despite their status as a colonized people and their deplorable living conditions, they clearly did not experience the depths of despair as did their privileged occupants. Only during times of economic strain such as the early 1920s did the population exhibit stress.

At the same time and in the same place, the military men enjoyed better housing, better nutrition, better water resources, and better medical attention relative to the civilians. These same men had already been selected for better physical health and strength and were embraced by their regiment and offered the camaraderie of their fellow men at arms. Yet these well-supplied men suffered a rate of suicide more than double that of the native Gibraltarians. In contrast, several recent studies have reported higher suicide rates for civilians [Sentell et al. 1997, Marttunen et al. 1997]. We suggest that discipline, boredom, and isolation from the native community exacerbated the soldiers’ sense of familial separation, while language differences further contributed to a sense of marginalization. The military men were suffering from the position they found themselves in, acting as the bulwark of power for the monarchs of the empire. We suggest that this supports the “tensions of empire” model

### Conclusion

This study addresses psychosocial parameters in a historical milieu and reasons that suicide is a suitable comparable indicator of well-being in a colonial population. But just as risk patterns of ill health can vary over time, any study that addresses an issue such as colonialism must be wary of presenting broad generalizations that are indifferent to local contexts or to the potential confounding effects of age and sex. Previous work in Gibraltar [Sawchuk, Burke, and Padiak 2002] demonstrated this heterogeneity, showing infant survivorship significantly higher among the military while maternal mortality rates were substantially the same in the two communities during the latter part of the nineteenth century. Clearly, then, suicide is but one of a potential battery of parameters that can be employed to characterize inter- and intracommunity differences in health.

In the case of adult males, the results of this study show that, on average, the military population suffered higher suicide rates than the civilian Gibraltarians, although at times the two populations’ rates converged. The two populations experienced life on the Rock differently. The military men were stationed there temporarily, for a period averaging between two and three years, while the Gibraltarians were in their home environment. Despite the privileges garnered by the military at the civilians’ expense, it is likely that the strong societal, familial, and religious supports of the Gibraltarian community enabled them to cope very well with the second-class status they had to endure. The people of Gibraltar had long been accustomed to their role as the colonized and had developed reciprocal support systems based on local networks and religious affiliation [Sawchuk 1996, 2000]. Even the single men would have been surrounded and supported by their extended families. Their cradle-to-grave society, supported by strong community identification, stabilized their lives and allowed them to develop a blueprint for surviving in the small space under the control of the colonial government, despite the funnelling of scarce resources away from the patrimonial community. The Gibraltarians’ ethos showed the value of social structure for the preservation of individuals’ and hence the society’s sense of well-being.

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of colonization and that the position of colonist was stressful and took its toll on well-being.

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