

Denomination, Religious Context, and Suicide: Neo-Durkheimian Multilevel Explanations Tested with Individual and Contextual Data¹

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In *Suicide*, Durkheim found that involvement in religious communities is inversely related to suicide risk. In this article, two explanations for this relationship are examined. One is that religious networks provide support. The other is that religious communities prohibit suicide. To examine these hypotheses, individual-level data on suicide in the Netherlands from 1936 to 1973 are used. The results show that with an increase in the proportion of religious persons in a municipality, the chances of committing suicide decrease for every denomination in that municipality, as well as among nonchurch members. Furthermore, along with the secularization of Dutch society, the impact of religious composition on suicide wanes. These results contradict the network-support mechanism and confirm the notion that religious communities have a general protective effect against suicide.

One of the best-known studies in sociology is Durkheim's *Suicide* ([1897] 1951), and perhaps the most famous proposition that came out of this study is that Protestants are more likely to commit suicide than Catholics. The Protestant-Catholic difference was confirmed both in Durkheim's

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research and in that of others (e.g., Dublin 1963; Halbwachs [1930] 1978), and subsequent work designated it as sociology's "one law" (see Pope and Danigelis 1981). Durkheim's classic study received praise for both its methods and its logical approach (e.g., Selvin 1958). In fact, some have called Durkheim's study the most influential work in sociology (Merton 1967).

Since the 1970s, however, *Suicide* has been questioned on several grounds. Theoretically, it has been argued that Durkheim formulated propositions on macrolevel units, such as groups and regions, and failed to develop a more informative theory at the microlevel (Thorlindsson and Bjarnason 1998). Methodologically, it has been argued that Durkheim formulated propositions at the microlevel, but failed to test them with individual-level data. Empirically, there is some indication that the difference between Protestants and Catholics could be attributed to systematic undercounting of Catholic suicides (Van Poppel and Day 1996). Pope (1976) argued that the Protestant-Catholic difference does not even have an empirical basis in *Suicide*, and subsequent aggregate-level studies have continued to raise questions about the validity of the "one law" (Bankston, Allen, and Cunningham 1983; Faupel, Kowalski, and Starr 1987; Pope and Danigelis 1981).

A century after *Suicide*'s publication, several studies evaluated the state of the art; two of these were *Émile Durkheim: "Le Suicide," One Hundred Years Later* (Lester 1994) and its European counterpart, *"Le suicide": Un siècle après Durkheim* (Borlandi and Cherkaoui 2000). In these and other metastudies (Stack 2000), the work of Pescosolido (1990, 1994; Pescosolido and Georgianna 1989) has been acknowledged as a promising answer to the theoretical critiques of *Suicide*. Instead of viewing the Protestant-Catholic difference from either a micro- or a macrolevel, Pescosolido reframed the ideas advanced in *Suicide* within a micro-macro approach, suggesting that the religious context affects the relationship between religion and suicide at the individual level. More specifically, she argued that a higher level of religious involvement lowers the chance of suicide because of the community support people receive from co-religionists. This explanation was tested and confirmed in several studies conducted on data from the United States (Ellison, Burr, and McGall 1997; Pescosolido 1990).

In this article, after reviewing the criticisms of *Suicide* more extensively, we contribute to the ongoing debate over the religion-suicide link in three ways. First, we suggest a second explanation for the inverse relationship between religious involvement and suicide risk. We argue that not only might religious communities provide support, they may also have stronger prohibitions against suicide than secular communities. Starting from this idea, we formulate new hypotheses on the effect of individual denomi-

nation and religious context on suicide. Second, we make methodological progress by using a unique data set, which contains individual-level data on suicide in the Netherlands between 1936 and 1973 and contextual data on the religious composition of residential areas. We are thereby able to avoid the problems associated with aggregate-level data (Breault 1994) that have been used to examine the religion-suicide link (Bankston et al. 1983; Ellison et al. 1997; Faupel et al. 1987; Pescosolido 1990; Pope and Danigelis 1981). Third, using individual-level data on suicide in the Netherlands between 1905 and 1910, we examine the idea that Catholic suicides are systematically underreported and that this is the reason for the observed difference in suicide rates between Catholics and Protestants (Van Poppel and Day 1996).

DURKHEIM ON SUICIDE: REVIEW AND APPRAISAL

In view of the criticisms of Durkheim's theory of religion and suicide, it appears that since the 1970s, the theoretical, methodological, and empirical underpinnings of the religion-suicide link have been seriously questioned. However, we argue that this was done on the basis of a number of faulty assumptions, and that Pescosolido (1990, 1994) has provided fresh theoretical impetus.

The first assumption is that the empirical regularity associated with Protestants being more likely to commit suicide than Catholics is one of sociology's "laws" (Bankston et al. 1983; Breault 1986; Faupel et al. 1987; Pope and Danigelis 1981). In fact, *Suicide* (Durkheim 1951, p. 208) puts forward a more general hypothesis, stating that "the more strongly people are integrated in a religious community, the lower their chances to commit suicide." Sociology's "one law" therefore only applies if Catholics are integrated within the church community more strongly than Protestants. Durkheim (1951, p. 161) remarked that the relatively low number of religious leaders in Protestant countries made this assumption plausible for the period he was examining. However, later researchers investigating the religion-suicide link simply assumed Protestants to be *always* less integrated than Catholics. Without providing support for this additional assumption, a finding that Catholics are more likely to commit suicide than Protestants need not run counter to Durkheim's general theory. In accordance with this more general hypothesis, it was found that in the Netherlands between 1937 and 1976, Rereformed (orthodox) Protestants had lower suicide rates than Catholics, who, in turn, had lower suicide rates than Reformed (liberal) Protestants, with orthodox Protestants being

the most frequent churchgoers and liberal Protestants the least likely to attend church (Ultee, Arts, and Flap 1996).²

A second faulty assumption is that Durkheim's theory can be interpreted solely in holistic terms. Critics of Durkheim's "social realism" (Jones 1999) or "collectivism" (O'Neill 1973) argue that *Suicide* provides a theory of collective entities but fails to formulate a more informative individual-level theory. Although *Suicide* indeed contains macrolevel propositions, it also provides hypotheses at the individual level. More important, however, is that the distinction between individuals and society is more or less artificial. Besides hypotheses on individuals and hypotheses on societies, there are also "macro-micro" or "relational" hypotheses on the influence of societies on individuals (Huber 1991; Lazarsfeld and Menzel 1961). The Protestant-Catholic pattern lacked exactly this multilevel or relational interpretation, for it was formulated with absolute properties of individuals at the microlevel (to be Protestant, to be Catholic) or absolute properties of groups at the macrolevel (Protestant countries, Catholic countries). Durkheim's more general idea, however, relates the properties of individuals with those of groups (Catholics and Protestants being more or less integrated in a religious community). Pescosolido (1990, 1994) reformulated *Suicide* in a multilevel approach which we develop here into two full-fledged competing explanations.

A third problem in the literature is the frequent use of aggregate data. This is because of the lack of individual-level data on suicides and possibly also because of the macrolevel interpretation of *Suicide*. Pope and Dangelis (1981) tested the Protestant-Catholic difference in suicide using countries as their unit of analysis; others have used smaller geographical units, such as counties in the United States (Bankston et al. 1983; Breault 1986; Faupel et al. 1987). More recent research conducted in the United States to examine multilevel effects on the religion-suicide link used counties (Pescosolido 1990) or standard metropolitan statistical areas (Ellison et al. 1997) as lower-level units, and larger regions (e.g., the Northeast, the West, the Midwest, the South) as contextual units. One of the problems of aggregate-level studies is their neglect of the possibility of contextual effects. This substantive point is often presented as a methodological one,

² In the Netherlands, there are two main Protestant (both Calvinist) denominations: Reformed Protestant (*Nederlands Hervormd*), which is the main Protestant denomination in the Netherlands, and Rereformed Protestant (*Gereformeerd*), which refers to all smaller denominations and churches that seceded from the Reformed Protestant Church from the year 1834 onward. Reformed Protestants are more liberal than the Rereformed Protestants.

the so-called “ecological fallacy” (Robinson 1950).³ If we agree that Durkheim’s theory must be modeled at the individual level, aggregate-level research findings on the religion-suicide link could be seriously biased. Several researchers have therefore pleaded for individual-level studies (Breault 1994; Burr, McCall, and Powell-Griner 1994; Ellison et al. 1997; Stack 1990; Van Poppel and Day 1996; Wasserman 1984). In addition, current attempts to build macro-micro linkages in sociology (Huber 1991) have made the exploitation of data linking the macrolevel to the mesolevel (Ellison et al. 1997; Pescosolido 1990) somewhat off the mark.

A fourth argument against *Suicide* is the suggestion that Catholics and Protestants have the same suicide rate, but that Catholics hide suicide as a cause of death more often than Protestants do (Atkinson 1978; Day 1987; Douglas 1967). Van Poppel and Day (1996) examined this idea, using a unique individual-level data set on suicides and other causes of death in the Netherlands from 1905 to 1910. They concluded that the Protestant-Catholic differential in suicide rates resulted from an undercounting of Catholic suicides. However, Simpson (1998) pointed to several methodological omissions in this study. One criticism was that the ratio of the Protestant-to-Catholic suicide rates and the ratios of rates for other causes of death, as presented by Van Poppel and Day, did not provide adequate estimates of suicide undercounting: the calculation of absolute suicide numbers is to be preferred. Using Van Poppel and Day’s data set, we applied this method and found that in seven out of ten age-gender groups, the higher number of suicides among the Protestant groups could not be attributed to systematic undercounting (app. A). Therefore, the idea of the undercounting of Catholic suicides, at least for the Netherlands about a century ago, is not supported.

NEO-DURKHEIMIAN MULTILEVEL EXPLANATIONS OF SUICIDE

Religious Context, Denomination, and Suicide: Community Support or Community Norms?

In this article, we hold that Durkheim’s *Suicide* can be augmented in a fruitful way. Instead of relying on the Protestant-Catholic difference, much is to be gained from a micro-macro approach to the religion-suicide link

³ Durkheim himself was criticized for having committed the ecological fallacy (Van Poppel and Day 1996). However, a closer inspection of *Suicide* reveals that Durkheim (1951, pp. 152–54) tested his individual-level hypothesis on Protestants and Catholics by disaggregating data (Besnard 2000). Initially he compared the suicide rates of different countries according to their religious composition. He then made the same comparison between regions within countries and finally examined individual-level data for Protestants and Catholics.

(Pescosolido 1994). From this perspective, the religious context is crucial for understanding the impact of denomination at the individual level. We argue that two different explanations can be advanced for the protective effect of religious communities. The first is that religious communities, or social networks in general, provide social and emotional support to their members, which prevents people from committing suicide. The other is that suicide is more strongly prohibited by churches than it is in other settings, and that the role of religious communities goes beyond that of protecting their own members. Both ideas can be traced in *Suicide*, but their development into multilevel explanations is neo-Durkheimian.

The role of community support on the denomination-suicide link was most explicitly stated by Pescosolido (1990, 1994; Pescosolido and Georgianna 1989). In an attempt to reframe Durkheim's ideas from a more contemporary network perspective, Pescosolido suggested that religious context affects the relationship between denomination and suicide. She argued that "having fewer co-religionists or weaker infrastructural base in a city, rural area, or particular region of the country often makes it hard to sustain churches and to form a resilient community that provides integrative protection from suicide" (Pescosolido 1990, p. 340). In addition, "one potential function of social networks is integration or the ability to provide social and emotional support" (Pescosolido and Georgianna 1989, p. 43). According to Pescosolido, therefore, one potential mechanism behind the denomination-suicide link is the support people receive from co-religionists or, more generally, homogeneous others. More formally stated, this idea predicts that the more co-religionists there are in an individual's direct environment, the more strongly that individual will be involved in his or her religious community, which will, in turn, provide more support, lowering the probability of committing suicide. We call this the *community-support mechanism* underlying the denomination-suicide link.

The community-support explanation has received ample empirical confirmation. Pescosolido (1990) examined aggregate suicide rates in 404 counties in five regions of the United States in 1970. Her findings indicate that the overall protective effect of Catholicism, Judaism, and evangelical Protestantism tends to be weaker in regions with fewer co-religionists. For example, she found that in general, a higher proportion of Catholics in a county lowers the suicide rate in that county; in the South of the United States, where Catholics are not strongly represented, there is a positive association between the proportion of Catholics in a county and suicide rates. Contrary to what might be expected, Pescosolido's analyses show that the presence of liberal Protestantism increases the suicide rate in counties in the Northeast, where Protestantism has traditionally been

strong.⁴ Ellison et al. (1997) examined suicide rates in 296 standard metropolitan statistical areas (SMSAs) in the United States in 1980. In accordance with the community-support mechanism, they found that religious homogeneity in SMSAs, or the extent to which people in a certain area adhere to a single religion, is negatively associated with suicide rates in those SMSAs.

A second explanation that brings religious context into denomination and suicide at the individual level is the notion that churches, and religious communities more generally, prohibit suicide. In *Suicide*, Durkheim (1951, p. 209) stated that Protestant and Catholic churches are equally strong in their prohibitions against suicide, but because of their greater involvement in the religious community, Catholics have a lower risk of suicide than Protestants. Durkheim (1951, p. 219) then mentioned the possibility of altruistic suicide, itself consisting of three varieties: obligatory, optional, and acute. Durkheim argued that “when a person kills himself, in all these cases, it is not because he assumes he has the right to do so but, on the contrary, *because it is his duty*. If he fails in this obligation, he is dishonored and also punished, usually, by religious sanctions.” Durkheim (1951, p. 228) then stated that some intermediate groups, such as the army, allow people to commit suicide in certain circumstances. Accordingly, Durkheim (1951, pp. 232–37) found that people who are strongly integrated in the army (e.g., officers) have higher suicide rates than people who are less integrated (e.g., soldiers). Taken together, these notions suggest that the impact of the level of integration on suicide risk is *conditional* in intermediate groups and depends on the norms that either prohibit or allow people to commit suicide (see Ultee 1975). If integration in groups forbidding suicide lower it, integration in groups allowing it increases suicide.

This suggestion can be generalized into a hypothesis about norm-regulated behavior in general: the more strongly people are integrated into a group, the more strongly they comply with *any* norm of that group (Stark 1994, p. 82; Ultee et al. 1996, p. 85). This hypothesis has been used with considerable success to explain voting as conformity to group opinion (Lazarsfeld, Berelson, and Gaudet 1944), juvenile delinquency as a consequence of having good or bad friends (Hirschi 1969), and individual religious belief as a result of parental socialization and a nation’s religious environment (Kelley and De Graaf 1997). Here, we examine this hypothesis with respect to suicide and refer to it as the *community-norms notion*.

⁴ Pescosolido (1990) remarks that this finding could be consistent with a social network idea, in which a certain network structure predisposes its members to commit suicide. Note that this suggestion comes close to the second mechanism behind the religion-suicide link.

The Dutch Religious Setting

The Dutch setting is particularly interesting for studying the relationship between religion and suicide. First, and most important, individual-level data on religion and suicide are available for multiple years and multiple regions. We examined a Dutch population of no fewer than 10 million persons living in more than 850 municipalities, looking at the yearly occurrence of suicide in the period 1936–73. Municipalities in the Netherlands are small geographical units that coincide with cities or towns and their surrounding environment. This multilevel data set has a major advantage over information in other countries where only aggregate data on suicide are available.

The Dutch setting is also interesting to study because it is made up of a large proportion of Catholics and various Protestant denominations. Findings on religious endogamy in the Netherlands in the period 1938–83 show that Catholics marry outside their group less often than Reformed (liberal) Protestants, and religious homogamy tends to be highest among Rereformed (orthodox) Protestants (Hendrickx, Lammers, and Ultee 1991). Of these three major groups, religious involvement is agreed to be highest among the Rereformed Protestants, second highest among Catholics, and lowest among Reformed Protestants (Ultee et al. 1996).

Furthermore, the geographic clustering of these three groups differs considerably across municipalities in the Netherlands. An average municipality in the 1936–73 period consists of 43% Catholics, 35% Reformed Protestants, and 11% Rereformed Protestants (Statistics Netherlands 1930, 1947, 1960, 1971). The southern part of the Netherlands is predominantly Catholic, including municipalities made up almost entirely of Catholics, whereas the North is mainly Protestant. Because the religious composition differs between regions, multilevel hypotheses can be tested more convincingly.

Another reason to study the Dutch scene is that the religious profile of the Netherlands has changed dramatically over time. In the 1950s, the Netherlands was highly segmented into religious and secular “pillars” which were the basis of the social and economic life of their members (Dekker and Ester 1996). However, since the 1950s, the Netherlands has experienced a process of rapid secularization, with the result that it is now one of the most secular nations in the world. For example, in the 1960s about 76% of the population was affiliated with a church; in 1980, this was down to 50% (te Grotenhuis and Scheepers 2001). Also, the percentage of people attending church at least once a week dropped from 50% in 1966 to 31% in 1979 (Dekker, De Hart, and Peters 1997). In addition to the three major religious denominations (Catholics, Reformed Protestants, and Rereformed Protestants), the Dutch setting is therefore

made up of a large group of persons who identified no religious affiliation in the census. An average municipality in the 1936–73 period consists of about 10% nonchurch members. The suicide pattern of this group provides a pivotal opportunity to test the community-support mechanism and the community-norms notion against each another.

Hypotheses on Religion and Suicide in the Netherlands

We used the community-support mechanism and the community-norms notion to formulate new multilevel hypotheses on the effect of an individual's denomination and the religious composition of residential areas on suicide in the Netherlands over the period 1936–73. We focus on four major "religious" groups: Catholics, Reformed Protestants, Rereformed Protestants, and nonchurch members.

The first contextual factor that could affect the denomination-suicide link is the proportion of church members in a person's direct environment. From the standpoint of the community-support mechanism, it could be argued that the presence of church members in the community has a protective impact on church members but an aggravating effect on nonchurch members. The community-support explanation assumes that people interact more often with persons having the same characteristics, such as religion, and that they correspondingly receive more support through homogeneous relationships. To provide a strong, supportive community to church members, religious groups therefore need to be sufficiently large. In contrast, social networks among nonmembers would tend to be less cohesive as their numbers in the direct environment decrease. Accordingly, nonmembers would receive less social support in strong religious regions.

HYPOTHESIS 1.—According to the community-support mechanism, an overall increase in the proportion of church members in a residential area should diminish the suicide risk of church members and increase the suicide risk of nonmembers in that area.

In contrast, the community-norms notion predicts that both members and nonmembers are at lower risk of committing suicide in highly religious areas. This is because it assumes that churches strongly prohibit suicide. To examine whether community norms affect suicide risk, we further assume that nonchurch members in a residential area will be exposed to church norms in proportion to the number of church members in that area. Nonmembers interact with church members at the neighborhood level, in formal and informal settings, and can therefore be assumed to have some degree of exposure to the norms of the religious groups in their environment.

HYPOTHESIS 2.—According to the community-norms notion, the pro-

portion of church members making up a residential area will be inversely related to the suicide risk of both members and nonmembers in that area.

We examine a more severe test of the community-support explanation as well, one that takes differences between denominations into account. The community-support mechanism assumes that people interact more often with homogeneous others and, correspondingly, that people receive more social support from those belonging to the same denomination. For example, Catholics should gain more support from Catholics than from Protestants and certainly more than from nonchurch members. The same line of reasoning applies to other denominations.

HYPOTHESIS 3.—The community-support mechanism suggests that the chance of suicide among members of a certain denomination is more strongly diminished if a higher proportion of that same denomination lives in the same area than if other religious denominations are more prominent in that area.

We also put the community-norms notion to a more severe test, examining suicide rates over time. We assume that the trend toward greater secularization in the Netherlands since the 1950s means that churches have had less and less influence on their members. This assumption is supported by earlier research that showed that the suicide rate increased in the period 1954–76 in the Netherlands (Ultee et al. 1996). This rise in the suicide rate was highest among Catholics (from 4.0 in 1954–56 to 9.6 in 1974–76), who experienced the strongest level of secularization. We assume that the contextual effect of religious composition on the risk of suicide should also show a decrease over this period.

HYPOTHESIS 4.—The community-norms notion predicts that the influence of the religious composition of a residential area on the chance to commit suicide among church members as well as among nonchurch members in that area will have decreased after the 1950s.

DATA AND METHODS

To construct our data set, we used all digitally registered data on Catholics, Rereformed Protestants, Reformed Protestants, and nonchurch members who committed suicide in the Netherlands (Statistics Netherlands 1999).⁵ This information was taken from the official Dutch registry of causes of death. Data were available in digital form for several years between 1936 and 1973, namely 1936–39, 1947–52, 1955, 1957, 1962, 1965, 1967, and 1969–73. Unfortunately, we could not use the data after 1973 because

⁵ Two small categories of persons who committed suicide were omitted from the data set, namely, suicides where denomination was unknown and for denominations other than Rereformed Protestant, Catholic, Reformed Protestant, and nonchurch member.

most government administrations stopped recording the religious denomination of suicides after this date. Despite this limitation, a total of 14,744 digitally registered suicides were available for analysis.

As suicide is a rather rare event, parameter estimates would be sensitive to small random fluctuations of suicide rates if the data from each year were analyzed separately. Therefore, we grouped all suicides together into four distinct periods: the prewar period 1936–39 and the postwar periods 1947–52, 1955–67, and 1969–73, during which the influence of religion gradually decreased.

The data set contains information on suicides by denomination, name of municipality, and period. A potential limitation is the lack of individual controls, such as age and sex. Figures for age, gender, and additional characteristics combined with denomination for the population at risk are unavailable at the level of the municipality. Therefore, we could not estimate the probability of committing suicide within each combined category of municipality, period, denomination, and age, gender, or other variable. We used census data to estimate population figures by denomination, municipality, and period (Statistics Netherlands 1930, 1947, 1960, 1971), and we applied linear interpolation to estimate population numbers for the four periods. Before doing this, however, we had to deal with an additional problem: the number of municipalities changed between 1936 and 1973. In 1936 there were well over 1,100 municipalities, but this fell to around 870 in 1973 (Statistics Netherlands 1991). As we did not want our parameter estimates to depend on these changes, we took the situation in 1973 as given and imposed it on the entire data set. The inhabitants of municipalities that ceased to exist before 1973 (which were predominantly small and rural) were thus added to the number of inhabitants of the (larger) municipalities that took over. This resulted in a longitudinal data set containing a total population of over 10 million Dutch people living in 870 different municipalities during the period 1936–73, which constitutes a unique set of individual and contextual data on suicide, suitable for a severe test of our hypotheses.

As contextual variables, we used the percentage of church members in a municipality: Catholics, Rereformed Protestants, and Reformed Protestants. We refrained from calculating the so-called “Herfindahl index” to indicate religious homogeneity (e.g., Ellison et al. 1997) because such an index is “blind” to the hypotheses at issue. For example, the Herfindahl index is exactly the same for municipalities with 40% nonmembers and 60% Catholics and municipalities with 60% nonmembers and 40% Catholics, whereas we hypothesize that these municipalities would have different contextual effects on the probability of committing suicide.

Because our data consist of two distinct levels, that is, an individual level and a contextual level, we applied multilevel regression analyses

(Snijders and Bosker 1999). In these analyses, the probability of committing suicide is made log-linearly dependent on the individual's denomination, contextual variables, and their interactions. For practical reasons, we present the estimated odds and odds ratios instead of the logit parameters. Because of the nature of our dependent variable, the probability of not committing suicide is very close to one. The odds ratios for all contextual variables (measured in percentages) can therefore be read as the number of times the probability of committing suicide increases (odds ratio > 1) or decreases (odds ratio < 1). The odds for each of the four denominations can be read as the individual's probability of committing suicide. Because this probability is extremely low, it is turned into a standard suicide rate (no. of suicides per 100,000 individuals). Because the estimated parameters are based on information from the entire Dutch population, we do not present confidence intervals or *P*-values.

RESULTS

To test our four hypotheses, we applied multilevel models in which we estimated both the effect of the individual's denomination and the contextual effect of the percentage of church members in that individual's municipality. Because this contextual effect was expected to differ across denominations, we included cross-level interactions between denomination and the percentage of church members. We made separate estimates for each of the four periods and for the overall period 1936–73. The results are shown in table 1.

The upper part of table 1 presents the estimated suicide rate for each of the four denominations within an average municipality (i.e., where 90.6% of the inhabitants are church members). For example, in such a municipality, the suicide rate among Catholics was 5.2 in the 1936–73 period. The lower part of table 1 shows the estimated contextual effects for each of the four denominations. These effects were parameterized to express the relative change in the suicide rate that would occur if the percentage of church members within the municipality changed by 10 percentage points. For instance, if Catholics lived in a municipality that consisted of 80.6% church members (i.e., 10 percentage points below average), the estimated suicide rate in the 1936–73 period would be $5.20/0.86 = 6.04$. Note that the suicide rates at the individual level in the three religious groups studied vary indirectly with the degree of religious involvement. In an average municipality over the period 1936–73, we predict that the lowest suicide rate will be among Rereformed (orthodox) Protestants (3.8), and the highest among Reformed (liberal) Protestants (8.8), while Catholics fall in between at 5.2. The fact that nonmembers

TABLE 1
ESTIMATED SUICIDE RATES AMONG DENOMINATIONS (Individual Level) AND THE
EFFECT OF CHANGING PERCENTAGES OF CHURCH MEMBERS (Contextual Level) IN THE
NETHERLANDS, 1936-73

	1936-73	1936-39	1947-52	1955-67	1969-73
Individual level:					
Denomination: [*]					
Rereformed Protestants	3.8	4.9	3.2	3.8	3.9
Reformed Protestants	8.8	12.2	7.7	8.1	7.7
Catholics	5.2	5.2	4.2	4.8	6.8
Nonchurch members	5.9	7.2	5.8	6.6	4.7
Contextual level (municipalities):					
Effect of % church members on the suicide rates of: [†]					
Rereformed Protestants	.89	.90	.83	.88	.91
Reformed Protestants	.85	.80	.76	.84	.88
Catholics	.86	.84	.77	.84	.94
Nonchurch members	.90	1.09	.91	.95	.84

* Effects for each denomination denote the estimated suicide rate per 100,000 in an average municipality (i.e., with 90.6% church members).

† The effect of the percentage church members denotes the no. of times the estimated suicide rate within each denomination decreases (odds ratio < 1) or increases (odds ratio > 1) with every 10-percentage-point increase of the percentage church members in a municipality.

rank only second highest (5.9) could be because of the fact that on average, they are younger than Reformed Protestants.

Hypothesis 1, derived from the community-support mechanism, states that the higher the percentage of church members in a municipality, the lower the probability of church members committing suicide, but the higher the probability for nonchurch members. Alternatively, the community-norms notion implies that the higher the percentage of church members in a municipality, the lower the probability of committing suicide for both church members and nonmembers (hypothesis 2). According to the lower part of table 1, all effects are below one, indicating that *all* suicide rates decrease as the percentage of church members in the community increases, with only one exception (for nonmembers, the effect amounts to 1.09 in the 1936-39 period). These findings contradict the community-support mechanism, which suggests that in strong religious communities, church members have strong social networks that provide social and emotional support, whereas nonchurch members are more excluded from community life and would not have this protective network. Instead, our analyses confirm the community-norms notion, arguing that in strong religious communities, suicide is strongly prohibited for all members of the community. Through interactions within neighborhoods, social

circles, and work settings, this norm affects even the behavior of those not involved in churches.

Another, more severe, test of the community-support mechanism is to estimate the contextual influence of each of the denominations instead of the contextual influence of church membership in general. According to community-support hypothesis 3, the probability of committing suicide would be most strongly influenced by the contextual effect of the denomination to which the individual belongs. According to community-norms hypothesis 2, denomination makes no difference: the contextual influence of all denominations should be roughly equal because suicide is forbidden in all religious communities. We therefore applied a multilevel analysis that measured the contextual effect of a religious community using the percentages of Reformed Protestants, Rereformed Protestants, and Catholics in the community. Results are shown in table 2.

The lower part of table 2 shows that for all three religious denominations, the contextual effects of Rereformed Protestants, Reformed Protestants, and Catholics on suicide rates are all below 1.00. The third hypothesis predicts that this contextual effect is strongest (i.e., closest to zero) where the individual's denomination matches the denomination prevalent at the contextual level. For instance, among Rereformed Protestants, the contextual effect of Rereformed Protestants should be stronger than the contextual effects of Reformed Protestants and Catholics. However, these predictions run counter to almost every finding in table 2, except in the period 1947–52, when the contextual effect of Rereformed Protestants (0.82) among Rereformed Protestants was indeed stronger than the contextual effect of Reformed Protestants (0.90) and Catholics (0.90). Thus, our findings do not confirm hypothesis 3 and again favor hypothesis 2. This suggests that the presence of a strong religious community that prohibits suicide is more important in reducing suicide rates than having co-religionists who supposedly provide social and emotional support.

We also tested the community-norms notion in a more rigorous way. Hypothesis 4 predicts that the contextual effects shown in table 2 should decrease from the period 1947–52 onward, as the influence of religion waned as part of broad secularization in the Netherlands. As table 2 shows, in most cases, the effects did indeed decrease. For example, the contextual effect of Catholics among Rereformed Protestants was at its highest (0.79) in 1947–52 and decreased to none (1.00) in 1969–73. Exceptions to this rule are the increasing contextual effects of Catholics and Reformed Protestants among nonchurch members. All in all, we think there is enough empirical evidence to corroborate hypothesis 4. This suggests that by prohibiting suicide, religious communities have a protective effect, but because of lower religious participation over time, these community norms have correspondingly lost much of their impact.

TABLE 2
ESTIMATED SUICIDE RATES AMONG DENOMINATIONS (Individual Level) AND THE
EFFECT OF CHANGING PERCENTAGES OF DENOMINATIONS (Contextual Level) IN THE
NETHERLANDS, 1936-73

	1936-73	1936-39	1947-52	1955-67	1969-73
Individual level:					
Denomination:*					
Rereformed Protestants	3.5	3.1	3.6	3.1	4.0
Reformed Protestants	12.0	20.8	13.6	10.9	8.6
Catholics	6.5	7.9	7.3	6.3	6.8
Nonchurch members	5.5	7.5	4.8	6.3	4.5
Contextual level (municipalities):					
Effect of % Rereformed Protestants on the suicide rates of:†					
Rereformed Protestants	.89	.87	.82	.92	.93
Reformed Protestants	.81	.78	.74	.83	.90
Catholics	.89	.89	.79	.76	1.00
Nonchurch members	1.08	1.29	1.22	1.05	.98
Effect of % Reformed Protestants on the suicide rates of:†					
Rereformed Protestants	.90	.93	.90	.86	.96
Reformed Protestants	.88	.85	.82	.87	.89
Catholics	.88	.90	.91	.84	.94
Nonchurch members	.89	1.01	.90	.92	.83
Effect of % Catholics on the suicide rates of:†					
Rereformed Protestants	.87	.79	.90	.83	.90
Reformed Protestants	.87	.85	.82	.87	.95
Catholics	.88	.88	.84	.84	.84
Nonchurch members	.89	1.09	.87	.93	

* Effects for each denomination denote the estimated suicide rates in an average municipality (i.e., with 34.5% Reformed, 10.8% Rereformed, and 43.1% Catholic).

† The effect of % Rereformed Protestants, % Reformed Protestants, and % Catholic denotes the no. of times the suicide rate within each denomination decreases (odds ratio < 1) or increases (odds ratio > 1) with every 10-percentage-point increase of the religious group's percentage in a municipality.

CONCLUSIONS

This article addressed theoretical, methodological, and empirical criticisms of the Durkheimian link between religion and suicide. We have shown that much of this criticism is misplaced and that the ideas advanced in *Suicide* can be elaborated in a profitable way.

To begin, this link should not be restricted to the differences between Protestant and Catholic suicide rates, because *Suicide* provides a more general hypothesis that specifies conditions under which this presumed regularity does or does not occur. This hypothesis states that "the more strongly people are integrated in religious communities, the lower their chances to commit suicide." It also implies predictions about differences

between liberal and conservative Protestants, and between persons with a certain denomination and those without a religion.

Furthermore, *Suicide* suggests two mechanisms behind this hypothesis. First, religious communities, and social networks more generally, provide social and emotional support, which restrain suicidal tendencies. We refer to this as the *community-support mechanism*. Second, religious communities prohibit suicide, implying that greater involvement in religious life is inversely related to suicide risk. We call this the *community-norms notion*.

Because both hypotheses specify contextual effects, we applied multi-level techniques to individual-level data on suicide and contextual-level data on the religious composition of municipalities in the Netherlands over the period 1936–73. In so doing, we improved on studies of suicide that have contained information on either the individual or the contextual level, but not on both. This approach also helped avoid the risk of ecological fallacies, so frequently associated with *Suicide* and subsequent research.

Our findings support the community-norms notion and question the community-support mechanism: the proportion of religious members in a municipality is inversely related to the chance of suicide for both church members and nonchurch members. Furthermore, we found that the probability of members of a denomination committing suicide is not influenced more strongly by the presence of that denomination (or other denominations) in the community. For example, Catholics in an overwhelmingly Catholic municipality are not at a lower risk of committing suicide than Catholics in a predominantly Protestant municipality. Instead, our findings suggest that religious communities exert an overall protective effect on all the members of a community, irrespective of their individual denomination, and including nonchurch members. Thus, it is not social support from homogeneous others that prevents people from suicide, but rather a shared religious norm prohibiting suicide, which extends to those who are not affiliated with any denomination. We assumed that this norm had become less widespread in the Netherlands after World War II. Our analyses indeed showed a diminishing impact of religious context on suicide over time, thereby reinforcing the idea of community norms.

In sum, the multilevel neo-Durkheimian approach advanced in this article is promising if Durkheim's theory is interpreted in a general way, specifying the relationship between individuals and social settings, and if it is tested with a multilevel design, containing information on both levels. In understanding the protective effect of religious communities, our analyses are more in favor of a community-norms explanation than a community-support explanation, at least for the Netherlands between 1936 and 1973.

DISCUSSION

How strong is our evidence in favor of the community-norms notion as opposed to the social-support argument? Here, we discuss our findings for the Netherlands and previous U.S. studies in terms of data quality and suggest possible theoretical elaborations and implications.

This study used individual-level data on suicide, whereas studies conducted in the United States have relied on aggregate statistics. We argue that aggregate studies carry the risk of ecological fallacies and do not examine micro-macro effects. Statistical problems arise in multilevel studies, too. When using aggregate data at the macro- (e.g., regional) and mesolevels (e.g., county), the number of cases at the highest (contextual) level is quite small. Ellison et al. (1997) and Pescosolido (1990) used four or five regions as contextual cases, which does not provide a strong test of contextual effects (Lieberman 1991). Furthermore, predictors in aggregate analyses (such as the divorce rate and percentage of church members) are often strongly correlated, making the results unstable. These arguments do not apply to population statistics for individuals and contexts; hence, research using such data is to be encouraged. European data, particularly prewar German statistics, provide a fruitful source.

However, a potential drawback of population statistics on suicide which does not apply to aggregate studies is the difficulty of obtaining individual controls. Although the records of people who committed suicide contain information on individual characteristics (e.g., marital status, age, sex), the statistics for the population at risk are often limited. It is possible that the variables for religious context in our analysis are associated with the composition of individual factors that affect suicide risk, and omitting relevant controls at the individual level could bias the interpretation of these effects (Blalock 1984; Hauser 1969).

We believe, however, that the limitations of our data set are not serious. We have no reason to suspect that religious context is strongly associated with possibly disturbing individual-level factors. Indeed, aggregate studies on the impact of religion on suicide in the United States show similar results for models with and without controls. Pescosolido and Georgianna (1989) include aggregated controls for income, education, sex, age, migration, divorce, and population density. They remark that the inclusion of these controls “did not change the influence of religion coefficients” (Pescosolido and Georgianna 1989, p. 37). Applying such controls would probably not make much of a difference in our study, either.

Moreover, the inclusion of individual controls sometimes obscures matters of causality. One factor for which we did not control was marital status. It is well known that divorced persons have a higher suicide rate than married people (Stack 1990). However, religious communities not

only prohibit suicide, but they also discourage divorce more strongly than secular communities (Bainbridge 1989). Including controls for marital status could therefore turn a significant effect of religion on suicide into an insignificant direct effect plus an (in)significant indirect effect, thereby concealing the total effect of religion. Burr et al. (1994) showed that in the United States, religion has a direct effect on suicide, and that it has indirect effects mediated through divorce. The situation in the Netherlands is probably not very different.

On a theoretical level, the evidence we present in favor of the community-norms notion could be questioned. We have assumed that religious communities prohibit suicide more strongly than secular communities, but we have not actually measured this. Pescosolido and Georgianna (1989) contacted representatives of 27 religious bodies and found that only two had an official position on suicide. Hence, they dismissed the community-norms argument.

However, Stark and Bainbridge (1997) present figures on attitudes toward suicide from the 1989, 1990, and 1991 U.S. General Social Surveys.⁶ They show that 8% of conservative Protestants maintain that a person has the right to end his or her own life; this belief is also held by 8% of Catholics, 16% of liberal Protestants, and 37% of nonchurch members. In the Netherlands, in the period 1979–2000, 12% of conservative Protestants maintained that people should have the right to end their own life, as did 17% of Catholics, 17% of liberal Protestants, and 38% of nonchurch members.⁷

These figures show, first, that in both countries, religious communities clearly prohibit suicide more strongly than secular communities. Second, they indicate that religious communities in the United States (especially conservative Protestants and Catholics) prohibit suicide more strongly than do those communities in the Netherlands, which is consistent with the stronger position of religion in the United States than in the Netherlands (Campbell and Curtis 1994). This provides an explanation for our finding that religious communities in the Netherlands do not have the normative constraint on suicide they once had, while religious communities continue to play a role in the United States. Finally, it seems that

⁶ The original question was stated as follows: "A person has the right to end their own life if the person is tired of living and ready to die?" Respondents could choose between (1) yes, (2) no, and (3) don't know. The last category was omitted to compute percentages.

⁷ This information is from Eisinga et al. (1992, 1999, 2002). The survey question (translated from Dutch) was "Do you think that people should have the right to end their own life if they want to, or do you think this should be prevented?" Respondents could choose among three response categories: (1) "They should have the right," (2) "Depends on circumstances," and (3) "This should be prevented."

in examining the role of the norms of religious communities on suicide, it is important to consider the religiosity of the entire nation. As an elaboration of the community-norms notion, we suggest that the norms of religious communities are reinforced by the wider social and institutional context. Here, we are pointing toward a more general research agenda for the neo-Durkheimian multilevel approach. In this perspective, suicide and other rule-guided forms of behavior (such as crime and divorce) are explained in terms of norms of communities and the broader social context.

How strong is our evidence against the social-support mechanism? We suggest several explanations and points of elaboration for the contradictions around this idea and our research findings. First of all, it might be questioned whether communities always provide positive social support. Just as community norms do not always prohibit suicide, religious communities, or social networks more generally, might not always provide positive support. The literature contains several instances of negative or “sour” social capital. Despite the positive effect of religion on well-being and health in general (Ellison et al. 2001), some studies have indicated that religion can have a negative impact. For the United States, it was found that the likelihood of a major depression was three times greater among Pentecostals than among persons without a religious affiliation (Meador et al. 1992). In addition, De Graaf and Flap (1988) showed that people who used nonpersonal methods to find a job obtained better jobs than people who used informal contacts. Moerbeek and Need (2003) showed that people could have “foes” in the workplace, who, in turn, reduced their labor-market opportunities. Finally, instrumental support at work can have negative effects on well-being (Deelstra et al. 2003). Thus, there is ample evidence for negative social support.

Second, one could ask to whom religious communities provide support. For the United States, it may be that religious communities are “selfishly protective,” that they protect only their own local group (Friedman and McGarvie 2003). In contrast, it could be that in the Netherlands, higher levels of community religiosity are associated with more support for all members of the community, including members of other religions or individuals who belong to no religious group. This may account for our finding that in the Netherlands, religious communities, irrespective of denomination, lower the suicide rate, while studies in the United States have found that only the presence of one’s *own* group lowers suicide risk. However, this explanation is less plausible in view of the strong religious segregation in Dutch society in the period we examined (Dekker and Ester 1996). While the norms of the religious community influence all members of a community, support was clearly restricted to one’s own group.

A third, and probably more promising, way of elaborating the social-support argument is to consider the strength of support that religious

communities provide. Just as community norms could be absent or weak, community support could be substituted by other forms of support. Apart from being influenced by community ties, support for individuals and the resources available to them depend upon market exchange, institutional distribution, and coercive appropriation (Wellman and Wortley 1990). The extent to which alternatives are available therefore affects the amount of support provided by religious communities.

The role of the state as a source of social support is relevant in this respect. After World War II, the Dutch state provided extensive welfare facilities, while in the United States, expenditures on welfare were considerably lower (Esping-Andersen 1990). Perhaps, then, the Netherlands is a country where religious communities, and social networks more generally, provide less social support than do those in the United States, since more support is provided by the state of the Netherlands than by the government of the United States. Differences between these societies in the role of the state might therefore provide an alternative explanation for the fact that the impact of religious communities on suicide is diminishing in Dutch society, while it remains important in the U.S. setting.

Following our suggestion about community norms being influenced by the wider social context, we argue that the amount of social support provided by the community declines in relation to the support provided by the broader social setting. The literature shows some evidence for this suggestion. De Graaf and Flap (1988) showed that in the United States, there is more use of informal sources to find a job than there is in the Netherlands and West Germany. In addition, it was found that social capital—as measured in terms of contacts with family and friends—is lower in social-democratic welfare regimes and in societies with large social expenditures (Scheepers, te Grotenhuis, and Gelissen 2002). This suggests another potentially fruitful research agenda for the neo-Durkheimian multilevel approach, in which the support provided by social networks and by other actors (such as the state) are considered simultaneously.

APPENDIX A

Reliability of Official Suicide Statistics

Van Poppel and Day (1996) maintained that Catholics hide suicides more often than Protestants. If this is true, these hidden suicides should be buried in other death classifications. Therefore, one should calculate absolute numbers, as was done by Phillips (1974, 1979), instead of ratios, as was done by Van Poppel and Day. We reanalyzed the data set (Statistics Netherlands 1907) used by Van Poppel and Day and present the results

in table A1. Table A1 presents the number of deceased persons by gender, age, religion, and cause of death. Under each cause of death, the observed number of Protestant deaths is presented first, followed by the observed number of Catholic deaths, then the expected number of Catholic deaths—assuming that Catholics would have the same death rate as Protestants—and, finally, the difference between observed and expected Catholic deaths.

For example, from 1905 to 1910, Statistics Netherlands counted 155 male Protestant suicides in the group between 20 and 29 years of age. At that time, this would give a suicide rate (no. of suicides per 100,000 individuals) of 10.12 within that specific group. If Catholics committed suicide at the same rate as Protestants in this category, the expected number of Catholic suicides would be 94. Table A1 shows that Statistics Netherlands recorded 52 suicides, leaving 42 cases that could have been incorrectly classified under other causes. However, one can see that only “sudden death” lists more Catholics than expected (+4). If all causes of death are considered, it appears that among males 20–29 years old, 68 fewer Catholics than expected died.

If these comparisons are made for females and other age groups as well, it turns out that younger age groups show no Catholic undercounting, but some older age groups do. It appears that in seven out of the ten age-gender groups, the lower rate of suicide among Catholics cannot be attributed to systematic undercounting. We conclude that some undercounting of Catholic suicides might exist (and did at the beginning of the 19th century in the Netherlands), but it is restricted to older age groups. We see no reason to believe that this undercounting accounts for the Protestant-Catholic differential.

TABLE A1
RELIGION AND CAUSE OF DEATH BY AGE AND GENDER IN THE NETHERLANDS, 1905–10: DIFFERENCE BETWEEN OBSERVED (O) AND EXPECTED
(E) NUMBER OF DECEASED PERSONS

CAUSE OF DEATH	AGE GROUP									
	20–29		30–39		40–49		50–64		65–79	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All suicides:										
Protestant (O)	155	60	154	54	238	80	429	128	241	67
Catholic (O)	52	16	52	10	69	20	117	32	63	13
Catholic (E)	94	35	94	32	142	46	260	75	150	39
Catholic (O–E)	–42	–19	–42	–22	–73	–26	–143	–43	–87	–26
Real accidents:*										
Protestant (O)	12	19	20	15	17	31	30	32	23	41
Catholic (O)	7	10	7	5	3	10	11	17	10	27
Catholic (E)	7	11	12	9	10	18	18	19	14	24
Catholic (O–E)	0	–1	–5	–4	–7	–8	–7	–2	–4	3
Suspected accidents:†										
Protestant (O)	592	138	462	91	391	104	590	189	448	213
Catholic (O)	332	55	253	38	236	27	343	72	210	100

Catholic (E)	358	80	282	53	233	60	358	111	278	125
Catholic (O-E)	-26	-25	-29	-15	3	-33	-15	-39	-68	-25
Sudden deaths:										
Protestant (O)	13	15	17	21	45	32	128	96	173	154
Catholic (O)	12	15	19	22	41	44	103	87	164	130
Catholic (E)	8	9	10	12	27	18	78	56	107	90
Catholic (O-E)	4	6	9	10	14	26	25	31	57	40
Ill-defined or unspecified cause of death:										
Protestant (O)	200	181	214	259	361	320	930	836	1,655	1,675
Catholic (O)	117	114	131	166	210	214	640	620	1,338	1,059
Catholic (E)	121	105	131	152	216	184	563	489	1,027	979
Catholic (O-E)	-4	9	0	14	-6	30	77	131	311	80
Deaths from all causes:										
Protestant (O)	972	413	867	440	1,132	567	2,107	1,281	2,540	2,150
Catholic (O)	520	210	462	241	559	315	1,214	828	1,785	1,329
Catholic (E)	588	240	530	258	629	326	1,277	750	1,576	1,257
Catholic (O-E)	-68	-30	-68	-17	-70	-11	-63	78	209	72

* Accidental deaths that can reasonably be presumed to contain no "hidden" suicides.

† Accidental deaths that can reasonably be presumed to contain "hidden" suicides.

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