In order to examine the relationship between spirituality and religiousness, 117 Jewish Israeli hospital nurses responded to a multidimensional measure of humanistic spirituality and indicated their identification with one of the four groups of degree of religious adherence common in Israeli society. Discriminant functional analysis indicated that three dimensions of spirituality—Fruits of Spirituality, Transcendent Dimension, and Meaning and Purpose in Life—were highly weighted on the significant discriminant function that differentiated between the groups and ordered them according to their degree of religiousness. Three additional spirituality dimensions—Mission in Life, Material Values, and Sacredness of Life—had slightly lower weights on this function. However, three other dimensions of spirituality—Idealism, Altruism and Awareness of the Tragic—were found be lowly weighted on the discriminant function. These results indicate that while the former aspects of spirituality are strongly associated with religiousness, the latter aspects are to a large degree independent of it.

In recent years, the number of investigations found in the literature focusing on spirituality has greatly increased (Zinnbauer and Pargament 2005). Many of these studies investigate the relationship between spirituality and various aspects of physical and psychological health and well-being (Koenig, McCullough, and Larson 2001; Shafranske 2002). However, whereas almost all of these investigations deal with the definition or conceptualization of spirituality and the difference between spirituality and religiousness at a theoretical level, few studies have attempted to shed empirical light on the relationship between the two phenomena. This study utilizes widely accepted social categories of the degree of religiousness among the Jewish population in Israel in order to help clarify this issue and to determine which aspects of spirituality are more closely related to religiousness and which aspects are not.

The manner in which the relationship between religiousness and spirituality has been conceptualized has changed. At one time, there was no differentiation between the two; religiousness and spirituality were treated as synonyms (Zinnbauer et al. 1997). Later, an apparent polarization occurred where religion was characterized as being more institutionalized and formalistic, whereas spirituality was seen as a more individual and inward expression. More recently, researchers conceptualize the two constructs as related but independent (Hill and Pargament 2003; Hill et al. 2000). However, even today, some researchers fail to distinguish between spirituality and religion or religiousness and treat them as more or less the same thing. For example, in their investigation of the relationship between religiosity and hypertension, Buck et al. (2009) discussed primary dimensions of religiosity found to be associated with blood pressure and identified “other religious dimensions” such
as private prayer, public participation, and spirituality. Bienenfeld and Yager (2007) discussed the gap between the outlooks of psychotherapists and patients concerning “spiritual beliefs and religious practices” and pointed out that trainees in the field of psychotherapy lack clear distinctions between various concepts such as spirituality and religiosity. They offered a definition of spirituality as “... a person’s attempt to make sense of his/her world beyond the tangible and temporal. It strives to connect the individual with the transcendent and transpersonal elements of human existence. It may, but need not, include religion” (Bienenfeld and Yager 2007:180).

Despite advances in the conceptualization of religiousness and spirituality, the relationship between them is still unclear. Hodge and McGrew (2006) noted that while some recent researchers have indicated that religion is included within the definition of spirituality (e.g., Canda 1997), other researchers claim that religion is the broader concept and that spirituality is included within the boundaries of religion. Some researchers have claimed that the two concepts are almost identical (Ai 2002; Miller and Thoresen 2003; Pargament 1999), while others have conceptualized these them as being completely independent constructs (Tan and Dong 2001).

A number of researchers have attempted to deal with the definition of spirituality and the overlap between religiousness and spirituality in a qualitative manner. For example, Hodge and McGrew (2006) examined the way that individuals define the terms in order to understand the interrelationship between spirituality and religion. They found that 47% of an American representative sample of graduate-level social workers believed that there exists a relationship between the two constructs and that 3% believe that they are identical. An additional 26% thought that spirituality and religion can be related one to the other, although this is not necessarily so. Only 6% of their sample declared definitively that no relationship exists between spirituality and religion. Estanek (2006) took a different approach and examined the definition of spirituality as it is reflected in higher education literature. She identified five non-redundant themes in this literature, among them spirituality used as a critique of religion and spirituality as a quasi-religion.

Some researchers have examined this issue in a more quantitative manner. For example, Corrigan et al. (2003) examined spirituality and religiousness among individuals suffering from serious mental illness. Based on the work of Zinnbauer and colleagues (Zinnbauer et al. 1997; Zinnbauer, Pargament, and Scott 1999), the research participants were presented with models of being “religious” and “spiritual.” Being religious was defined as belonging to a group of individuals who gather around common ways of worship and as holding beliefs, emotions, or practices in relation to a higher power whereas being spiritual was defined as considering oneself as part of a larger spiritual force and being connected to God, nature, or some other unifying force. The research participants were then asked if they were “religious” and if they were “spiritual,” and were asked to answer in a yes-no manner. Approximately one quarter of the research participants answered as if religiousness and spirituality were independent constructs; close to 22% reported being spiritual but not religious and about 4% considered themselves to be religious but not spiritual. The responses of the remaining research participants, who identified as being both religious as well as spiritual (64%) or neither religious nor spiritual (11%), were not indicative of an independent or dependent conceptualization of religiousness and spirituality. Similarly Shahabi et al. (2002) asked a large representative sample of American adults to indicate the extent to which they considered themselves to be “a religious person” and “a spiritual person.” Approximately
an equal amount indicated that they were spiritual but not religious (10%) or religious but not spiritual (9%), whereas 52% indicted that they were both and 29% neither. Zinnbauer et al. (1997) used a forced choice format and found that 74% of their sample identified as spiritual and religious, 3% not spiritual and not religious, 19% spiritual but not religious, and 4% religious but not spiritual. In these studies it appears that spirituality and religiousness are definitely related where between 74% to 84% of those identifying as being spiritual also identify also being religious. However, from 16% to 26% of those individuals who identified as spiritual indicated that they were not religious, indicating an independence of spirituality from religiousness.

Zinnbauer and Pargament (2005) concluded that although a minority of individuals define themselves as spiritual but not religious, and in this way reject religion, most individuals define themselves as being both spiritual as well as religious. In addition, at least in U.S populations, religiousness and spirituality while not being identical do have a considerable degree of overlap. However, these conclusions are, as stated, generalizations and do not indicate which aspects of religiousness and spirituality overlap and which aspects are independent. The present investigation attempted to define this relationship more clearly and to determine which aspects of spirituality are more closely related to religiousness and which aspects are more independent.

Of course, the answer to this question will be influenced by the definitions and resulting measurements of these two constructs. If a definition of religiousness that stresses the belief aspects of religion is adopted while a definition of spirituality that focuses on the experiential aspects is used, the overlap between the two constructs would presumable be limited in comparison to a case where the definitions of both constructs stress experiential aspects. In order to at least partially overcome this problem, the present study took advantage of the existence of widely accepted distinctions between degrees of religiousness among the Jewish population in Israeli society rather than using a classical psychometric measure of religiousness. In Israel, members of the Jewish population describe themselves as belonging to one of four groups of degree of religiousness—Haredi (Ultra-religious), Dati (Religious), Masorati (Traditional), Hiloni (Secular, Non-religious). This is in contrast to the situation in the U.S. and in Europe where Jewish individuals usually identify with one of the major Jewish movements (Orthodox, Conservative, Reform). According to the Israeli Central Bureau of Statistics (2007), 7.8% of the Israeli Jewish population identified as Haredi, 9.5% as Dati, 39.2% as Masorati, and 43.6% as Hiloni. While there are no “official” or legal definitions of these groups, the degree of religiousness that characterizes them is a matter of common knowledge in Israeli society. The Haredi population is considered to be extremely religious with strict adherence to the Jewish law (halacha), are predominantly non-Zionistic, and generally isolate themselves from modern Israeli society (i.e., living in exclusively segregated Haredi communities). The Dati population also adheres to the Jewish law, often in a less strict manner than the Haredi, are Zionistic, and much more integrated into mainline Israeli society (e.g., serving in the Israeli army). Individuals who identify as being Masorati value Jewish tradition and practices but choose for themselves which aspects of the Jewish law they adhere to. Often such individuals will attend Orthodox prayer services on the Sabbath morning but afterwards drive to the beach or to a soccer game, which constitutes a desecration of the Sabbath according to Jewish law. Finally, individuals identifying as Hiloni (secular or non-religious) do not accept the Jewish law as binding.
An indication of the validity of this division into four groups can be found in the findings of a recent poll focusing on religious observance among Israeli Jews (Guttman Center 2007); individuals were asked to rate the level of their religious observance as fully observant, very observant, somewhat observant, or non-observant. Among individuals who identified as Haredi, 90% described their level of observance as fully observant and 10% as very observant. The level of observance was slightly lower for individuals who identified as Dati where 28% of these individuals reported that they were fully observant and 66% very observant. Israeli Jews who identified as Masorati reported their level of observance as very observant (32%) or somewhat observant (60%). Finally, among Israeli Jews who identified as Hiloni, only 9% stated that they are very observant, 59% as somewhat observant and 32% as non-observant. It should be noted that most Israeli Jews who identify as Hiloni do perform many Jewish religious rituals (Levy, Levinson, and Katz 1993). However, their practices are maintained for family and other reasons rather than for expressly religious reasons (Lazar, Kravetz, and Kedem-Friedrich 2002). In summary, in contrast to various scales of religiousness, the division of Israeli Jewish society into these four groups and self-identification with one of them appears to be a natural, well-understood, and meaningful measure of religiousness.

In order to allow for the possible differentiation between aspects of spirituality that are more closely related to religiousness and those aspects of spirituality that are more independent from religion, a multidimensional measure of spirituality based on a non-religious humanistic approach to spirituality (Elkins et al. 1988) was used. It presupposes that 1) there exists a spiritual dimension of human experience; 2) the human phenomenon of spirituality can potentially exist in all persons; 3) spirituality is not identical with religiosity and hence persons can be spiritual even if they are not affiliated with traditional religion; 4) spirituality can be defined and assessed in an empirical manner. Elkins et al. reviewed an extensive list of major writers who dealt with spirituality from a phenomenological perspective. The resulting multidimensional definition of humanistic spirituality included the following nine components: (1) Transcendent Dimension (a belief, based on experience, in a transcendent dimension of life and that contact with this unseen dimension of life is positive), (2) Meaning and Purpose in Life (life is meaningful, and an individual’s existence has purpose), (3) Mission in Life (an individual has a mission to accomplish), (4) Sacredness of Life (life is not divided into holy and profane, and all aspects of life are sacred), (5) Material Values (the material aspects of life are appreciated but are not seen as the source of ultimate satisfaction), (6) Altruism (every individual has a responsibility towards other human beings, and others’ suffering is felt), (7) Idealism (a commitment to high ideals, to the betterment of the world and to the actualization of life’s positive potential), (8) Awareness of the Tragic (an awareness of human pain that provides an existential seriousness in relation to life), and (9) Fruits of Spirituality (spirituality has discernible benefits in an individual’s relationship with the self, with others, with life and nature, and with the ultimate).

On the basis of this definition, Elkins et al. (1988) developed the Spiritual Orientation Inventory (SOI), which has been used as a measure of spirituality in a number of empirical investigations. For example, in a study of nurses’ willingness to care for AIDS patients, Sherman (1996) found that spirituality as measured by the SOI was positively correlated with willingness and negatively correlated with death anxiety. The SOI has been found to be correlated with the reversal of coronary obstructions Morris (2001). Palmer and Braud (2002) used the SOI in their investigation of the relationship between spirituality and excep-
tional human experiences. In a study focusing on dissociative identity disorder, Ellason, Ross, and Day (2003) administered the SOI to individuals suffering from depression and reporting childhood physical and sexual abuse. Finally, Gomez and Fisher (2003) used the SOI in order to validate their Spiritual Well-Being Questionnaire. It should be noted that although the SOI is a multidimensional measure of spirituality and provides nine scores, most of the above-mentioned studies used a single score of total spirituality.

Based on the assumption that some aspects of spirituality are more closely related to religion whereas others are more independent from religion, it was expected that those spirituality dimensions that are more closely associated with religiousness would differentiate between the groups of religious adherence and would order them accordingly; i.e. the Haredi and Dati groups would have higher scores on these dimensions than would the Hiloni group. In contrast, it was expected that those dimensions of spirituality that are more independent from religiousness would not differentiate between these groups in this manner; i.e., the Hiloni group would have higher scores than would the Haredi and Dati groups or that all groups would have similar scores on these dimensions.

**METHOD**

In the framework of a larger study dealing with spirituality in the work place, a sample of 120 female nurses working in a hospital in central Israel participated in the study. Three incomplete questionnaires were discarded. Age ranged from 21 to 62 (M = 39.6 years; SD = 10.0). All research participants were Jewish Israelis and self-identified as being Haredi (Ultra-religious, 8.5%), Dati (Religious, 36.8%), Masorati (Traditional, 20.5%), or Hiloni (Secular / Non-religious, 34.2%). Family status was reported as 15% single, 81.7% married, and 3.3% as divorced, widowed or other. All research participants reported finishing high school, 51% reported holding a BA or MA degree and 47% reported having some post-secondary school education.

The Spiritual Orientation Inventory (SOI) is an 85-item measure developed by Elkins et al. (1988) that provides the mentioned nine subscales of spirituality: (1) Transcendent Dimension, 13 items (e.g., “I have had experiences in which I felt very close to the transcendent, spiritual dimension”; “There is a transcendent, spiritual dimension to life”); (2) Meaning and Purpose in Life, 10 items (e.g., “The search for meaning and purpose is a worthy quest”; “Answers can be found when one truly searches for the meaning and purpose of one’s life”); (3) Mission in Life, 9 items (e.g., “I believe life presents one with a mission to fulfill”; “I have a sense of personal mission in life; I feel I have a calling to fulfill”); (4) Sacredness of Life, 15 items (e.g., “I have experienced a sense of awe about the specialness of human beings”; “I believe it is a mistake to attach sacredness only to religious places, objects, and activities”); (5) Material Values (i.e., non-materialistic values) 6 items, (e.g., “Ultimately, the sole pursuit of money and possessions will leave one empty and unfulfilled”; “I have a spiritual hunger which money and possessions do not satisfy”); (6) Altruism, 7 items (e.g., “I feel a deep love for all humanity”; “People who know me would say I am very loving and reach out to help others”); (7) Idealism, 10 items (e.g., “While there is much evil in the world, I believe goodness, integrity, and love also abound”; “When I see ‘what is’, I have visions of ‘what can be’”); (8) Awareness of the Tragic, 5 items, (e.g., “I have grown spiritually as a result of pain and suffering”; “I am a better person today because of life experiences which at the time were very painful”); (9) Fruits of Spirituality, 10 items (e.g., “Contact with the transcendent, spiritual dimension has helped
reduce my personal stress level”; “Contact with the transcendent, spiritual dimension has helped me sort out what is really valuable in life from what is not”). A Hebrew version of the SOI (see Lazar n.d.) was used in the present study. Research participants responded to SOI items on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). In the present study, the reliability coefficients for the subscales ranged from .68 to .93 with the exception of Awareness of the Tragic (α = .56). The respondents were also asked to report their age, sex, family status, level of education, job seniority, and religious group identity.

After receiving permission from the hospital administration to conduct the study, two female research assistants distributed questionnaires to the nursing staff. A cover letter from the office of the head nurse requesting that the nurses cooperate with the study was attached to the questionnaires. The research participants were assured that responses would be anonymous and confidential, and it was stressed that participation was voluntary and could be ended at any time. No incentive was offered for participating. Virtually all nurses approached agreed to participate in the study. Once the goal of 120 research participants was reached, no further questionnaires were distributed. Participants returned the filled-out research instruments to the research assistants immediately upon completion.

RESULTS

Scores for the nine dimensions of spirituality were calculated by averaging scale items resulting in scores ranging from 1 (low) to 5 (high). Discriminant function analysis was conducted in order to determine if these scores distinguished between the four groups of religious identity. This analysis is a multivariate technique that identifies the combination or combinations of variables that best separate groups. In the case of the present study, a significant discriminant function would indicate that a particular combination of spirituality dimensions is able to differentiate between the four groups of religious identity. The analysis resulted in one statistically significant discriminant function ($\chi^2 = 58.78$, Wilk’s $\lambda = 0.59$, $df = 27$, $p < 0.001$). The discriminant function was able to correctly classify 62.4% of the total usable sample into the categorical dependent variable of religious identity after assigning equal $a$ priori probabilities to the groups (Tabachnick and Fidell 1996). The total structure matrix coefficients and group centroids for these functions, together with group means and standard deviations, are presented in Table 1.

The matrix coefficients in Table 1 indicate that the function that discriminates between the four groups of religious identity was highly weighted (structure matrix coefficients = 0.53 to 0.76) on six dimensions of spirituality—Fruits of Spirituality, Transcendent Dimension, Meaning and Purpose in Life, Material Values, Mission in Life, and Sacredness of Life. In contrast, the other three dimensions of spirituality—Idealism, Altruism, and Awareness of the Tragic—were found to have low weights (structure matrix coefficients = 0.00 to 0.36) on this function and had negligible contributions to differentiating between the groups. Examination of the group centroids, which are group means on the discriminant function, shows that the first function orders the groups from the highest degree of religiousness (Haredi) to the lowest degree (Hiloni).

DISCUSSION

The results presented here indicate that while some aspects of humanistic spirituality are closely related to religiousness, others appear to be independent from religiousness. Six
dimensions of spirituality were found to considerably contribute to the discriminant function that ordered the groups from a high to low degree of religiousness. Three dimensions of spirituality—Fruits of Spirituality, Transcendent Dimension, and Meaning and Purpose in Life—were found to be of particular importance in differentiating between these groups. For the more religious individuals spirituality was found to be something real, with clearly felt resulting benefits. They also demonstrated a strong belief in something beyond the here-and-now. In addition, the more religious were found to have a strong sense of meaning and purpose in life. In comparison, the less religious individuals had a weak belief in the transcendent aspects of life, did not find spirituality to have tangible benefits, and expressed serious doubts regarding the search of life’s meaning and purpose.

Table 1. Group means and standard deviations for dimensions of spirituality, total structure matrix coefficients, and group centroids

<table>
<thead>
<tr>
<th></th>
<th>Haredi N=10</th>
<th>Dati N=43</th>
<th>Masorati N=24</th>
<th>Hiloni N=40</th>
<th>Structure Matrix Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits of Spirituality</td>
<td>Mean 3.73</td>
<td>SD .80</td>
<td>Mean 3.71</td>
<td>SD .81</td>
<td>Mean 3.3</td>
</tr>
<tr>
<td>Transcendent Dimension</td>
<td>Mean 3.41</td>
<td>SD .90</td>
<td>Mean 3.59</td>
<td>SD .62</td>
<td>Mean 3.26</td>
</tr>
<tr>
<td>Meaning and Purpose in Life</td>
<td>Mean 4.02</td>
<td>SD .71</td>
<td>Mean 3.92</td>
<td>SD .51</td>
<td>Mean 3.71</td>
</tr>
<tr>
<td>Material Values</td>
<td>Mean 3.93</td>
<td>SD .69</td>
<td>Mean 3.66</td>
<td>SD .71</td>
<td>Mean 3.43</td>
</tr>
<tr>
<td>Mission in Life</td>
<td>Mean 4.00</td>
<td>SD .52</td>
<td>Mean 3.99</td>
<td>SD .62</td>
<td>Mean 3.67</td>
</tr>
<tr>
<td>Sacredness of Life</td>
<td>Mean 3.84</td>
<td>SD .37</td>
<td>Mean 3.89</td>
<td>SD .39</td>
<td>Mean 3.68</td>
</tr>
<tr>
<td>Idealism</td>
<td>Mean 3.88</td>
<td>SD .70</td>
<td>Mean 3.97</td>
<td>SD .43</td>
<td>Mean 3.76</td>
</tr>
<tr>
<td>Altruism</td>
<td>Mean 3.65</td>
<td>SD .66</td>
<td>Mean 4.04</td>
<td>SD .55</td>
<td>Mean 3.75</td>
</tr>
<tr>
<td>Awareness of the Tragic Group</td>
<td>Mean 3.08</td>
<td>SD .69</td>
<td>Mean 3.22</td>
<td>SD .62</td>
<td>Mean 3.17</td>
</tr>
<tr>
<td>Centroids</td>
<td>Mean 1.07</td>
<td>SD .54</td>
<td>Mean -.03</td>
<td>SD -.83</td>
<td></td>
</tr>
</tbody>
</table>
A second group of spirituality dimensions—Mission in Life, Material Values, and Sacredness of Life—were found to have relatively high contributions to the discriminant function, although to a lesser extent than was found for the former dimension of spirituality. The more religious individuals felt that they had some type of calling in life, that material achievements, while to be valued, are not the ultimate end in life, and that there is no real distinction between sacred and secular aspects of life but that all aspects of life are sacred. In comparison, the less religious individuals did not have a strong sense of personal mission in life, placed a high value on the material aspects of life, and tended to identify sacredness with religious places and activities. These dimensions appear to be considerably associated with religiousness but with a moderate degree of independence from it.

In sharp contrast, Idealism, Altruism and Awareness of the Tragic were not found to be important in discerning between the more religious and the less religious. Religious individuals were not more idealistic than were secular individuals; non-religious individuals had similar levels of altruism as did religious ones. All groups were similar in the manner in which they related to the more painful aspects of life. In other words, these three aspects of humanistic spirituality were found to be relatively independent from religiousness.

Westgate’s (1996) framework of spirituality may be helpful in interpreting these findings. On the basis of various definitions of spirituality in the literature, Westgate identified four themes or components of spirituality: transcendent beliefs and experiences; meaning and purpose in life or what George et al. (2000) referred to as the life coherence aspect; intrinsic values that guide an individual’s life, held by him or her with no ulterior motives; and community or relationship aspects of spirituality including a willingness to help others. Examining the results of this study through this framework reveals that the transcendent and life coherency aspects of spirituality are closely related to religiousness. In contrast the community aspect of spirituality is apparently independent from religiousness.

At least two very different explanations can be offered to explain these findings. On the one hand, spirituality may be an integral component of religion and religion may be inherently spiritual. Alternatively, it may be that although spirituality is indeed independent from religion, religion is a conducive platform for the expression of various aspects of spirituality. Perhaps the two most basic tenants for most of the world’s major religions is the belief in God and belief in the existence of the world-to-come. Such beliefs are, of course, entirely transcendent in nature. Jewish philosophy also teaches that God created the world for a purpose and that each individual has his or her own particular part in fulfilling that purpose. In this manner, religion stresses life coherency as well as providing a day to day framework for feeling and experiencing such a coherency. Still another teaching of Jewish philosophy and ethics is that no part of God’s creation is in itself profane or evil. All is dependent upon the fashion in which the individual relates to the apparently mundane aspects of life. For example, one person can eat in order to satiate his appetite in a manner similar to the animal kingdom whereas a second individual can eat in order to nourish his body so that he will have the strength to continue serving God. Finally, the sacredness of human life is reflected in many of the teachings and laws of the Jewish religion. Therefore, it is not surprising that religious individuals are indeed, on the average, more “spiritual” than are individuals who are not part of this spirituality oriented framework.

The implications of this study are important for research dealing with the relationship between spirituality and various outcome variables such as physical and mental health. Often in such investigations, this relationship is examined after statistically controlling for
religion. In light of the results presented here, in order to uncover spirituality’s possible unique contribution to the prediction of these outcome measures over and above the contribution of religiousness, it is important to use measures of spirituality that differentiate between the various aspects of spirituality and in particular that include altruistic and ideological facets of spirituality. The use of a unidimensional or composite measure of spirituality may not be sensitive enough to demonstrate possible unique relationships between spirituality and other measures.

The relative independence of certain aspects of spirituality (i.e., Altruism, Idealism, and Awareness of the Tragic) from religiousness demonstrated in this study would seem to be of particular importance for research in the growing field of “Workplace Spirituality.” Research in this field has shown that spirituality is relevant to a variety of areas of organizational interest such as leadership, job satisfaction, work-family issues, and even recruitment (see Giacalone and Jurkiewicz 2003). It would appear to be fruitful to focus on the religion-independent aspects of spirituality in this context. For example, an investigation of the contribution of a spiritual-altruistic orientation for work satisfaction in helping professions may provide important insights for human resource professionals.

The measure of spirituality used in this study, the SOI, was developed outside of the Middle East. When using a multidimensional measure in a culture that is different from the culture in which it was developed, it is highly desirable to ascertain whether the dimensional structural is similar in both cultures. In the case of the SOI, to the best of my knowledge, the first-order dimensional structure has never been tested by exploratory or confirmatory factor analysis. Rather the scales, as theoretically developed by Elkins et al. (1988), have been used. Indeed, in most of the studies that used the SOI, the multidimensionality of the measure was not taken advantage of and only a total SOI score was used. In any case, in the present study, the size of the sample precluded the use of factor analysis to examine the dimensional structure of the SOI. According to Osborne and Costello (2004) there are two approaches regarding the adequate sample size for factor analysis. According to one approach, a minimal absolute sample size is necessary. For example, according to the guidelines suggested by Comfrey and Lee (1992) the sample size in the present investigation borders on “poor” for performing factor analysis. The second approach to sample size focuses on the subject-to-item ratio. For example, Nunnally (1978) formulated a widely cited rule-of-thumb that this ratio should be at least 10 subjects for each item. Even researchers such as Gorsuch (1983), who suggest a more lenient ration of 5:1 in certain cases, still recommend higher ratios. In any case, the subject-to-item ratio in this study was 1.4:1 and therefore the use of factor analysis was not feasible. It is recommended that the factor structure of the SOI should be examined, both in the West as well as in other cultures, to insure the SOI’s generalizability across different cultures.

A number of limitations of the present study should be mentioned. Although the overall sample size was acceptable for the statistical analysis used, the sizes of the religious groups were rather small. In particular, the Ultra-religious Haredi group contained only ten research participants. Although the members of the Haredi community are known for their unwillingness to participate in social research, future research should endeavor to include larger numbers of representatives from this group, as well as from the other groups of religiousness. An additional limitation of the research sample is the representativeness of the sample and the possibility of generalizing the results uncovered here to other populations. The entire research sample consisted of female hospital nurses. A well know finding in the
religious research literature is that women are in general more religious than are men (see Beit-Hallahmi and Argyle 1997). It this light, it would also be logical to assume that women are more spiritual than are men. In addition, “spiritual” issues such as human suffering, the meaning of life, and purpose and mission in life are particularly relevant to the nursing profession in general, and to hospital nursing in particular. The results presented here may in some way reflect the spiritual orientation of the nursing profession. It is therefore important to replicate this study using a more heterogeneous research sample. Finally, all research participants in this study were Israeli Jews. Future research should examine Jewish samples in other countries where the question of Jewish identity is different, as well as members of different faiths.

One of the unique features of this study is that it used a “natural” measure of religiosity, i.e. a categorization of degree of religiosity that is widely accepted in Israeli society. On the other hand, some of the problematic aspects of this measure should be mentioned. Since there are no “official” definitions of religious identity, two individuals of the same degree of religious belief and behavior may identity themselves as belonging to different religious groups. For example, one individual who observes the Jewish dietary laws and the Jewish Sabbath may consider himself religious even though he doesn’t wear a skullcap; a second individual with the same degree of Jewish religious observance may consider himself as being traditional because he doesn’t wear a skullcap. In any case, future research should examine the relationship between spirituality and other dimensions of religio such as religious behavior, religious belief, and religious motivation.

A final limitation that is inherent to any empirical study of constructs such as spirituality is, of course, the measure used. The measure used in the present study, the SOI (Elkins et al., 1988), is a multidimensional measure of spirituality based on a humanistic approach. However, this measure has been criticized as being limited to the more cognitive orientations of spirituality: MacDonald (2000) uncovered a five dimensional structure for spirituality—Cognitive Orientation Towards Spirituality, Experiential-Phenomenological Dimension, Existential Well-Being, Paranormal Beliefs, and Religiousness—and found that most of the SOI dimensions were associated with the Cognitive Orientation Towards Spirituality dimension. Future research should examine the overlap between spirituality and religiousness using measures of spirituality of a broader scope such as the Expressions of Spirituality Inventory (ESI: MacDonald, 1997, 2000) based on the five dimensional structure mentioned above.

In conclusion, the present investigation has added to our understanding of the complex relationship between religiousness and spirituality. Past researchers have concluded that religiousness and spirituality are related but independent constructs. The results presented here indicate that the degree of relatedness and independence is different for various dimensions of spirituality. Some aspects of spirituality were found to be closely intertwined with religiousness whereas other aspects of spirituality proved to be highly independent from religiousness.

NOTES

1Correspondence concerning this article should be addressed to Aryeh Lazar, Department of Behavioral Sciences, Ariel University Center of Samaria, P.O. Box 3, Ariel, 44837, Israel. Email: lazara@ariel.ac.il. The results presented here are based on data collected for a larger study concerning spirituality and the workplace.

2Due to the low level of reliability for the Awareness of the Tragic subscale, all statistical analyses were rerun excluding this subscale. The results were almost identical to those reported here.
REFERENCES


The Relationship Between Spirituality and Religiousness Among Jewish Nurses in Israel


