Clustered Women’s Health Behaviors

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This study attempts to characterize health lifestyles by subgrouping women with similar behavior patterns. Data on background, health behaviors, and perceptions were collected via phone interview from 1,075 Israeli women aged 50 to 74. From a cluster analysis conducted on health behaviors, three clusters emerged: a “health promoting” cluster (44.1%), women adhering to recommended behaviors; a “inactive” cluster (40.3%), women engaging in neither health-promoting nor compromising behaviors; and an “ambivalent” cluster (15.4%), women engaging somewhat in both health-promoting and compromising behaviors. Clustering was cross-tabulated by demographic and perceptual variables, further validating the subgrouping. The cluster solution was also validated by predicting another health behavior (mammography screening) for which there was an external validating source. Findings are discussed in comparison to published cluster solutions, culminating in suggestions for intervention alternatives. The concept of lifestyle was deemed appropriate to summarize the clustering of these behavioral, perceptual, and structural variables.

Health lifestyle is a concept that has been gaining broader use during the past two decades, especially since the World Health Organization (WHO) attempted to define it. The definition adopted by the WHO regards individuals’ health lifestyle as a way of life, a sociocultural phenomenon arising from interactions between their patterns of behavior and specific life situations. Most of the deaths in postindustrialized countries are attributed to unhealthy lifestyles, and national and international health programs use this concept in setting goals and charting ways of implementing them.

Most of the work carried out on health lifestyle adopts one of two approaches. The first view regards lifestyle as a way of living or a manner in which people conduct their daily activities. Specifically, health lifestyle is defined as all the behaviors over which an individual has control, including actions that affect his or her health risks. The focus is on discretionary activities that are a regular part of one’s daily pattern of living and have a significant impact on one’s health status. This perspective may be characterized as reductionist in its exclusive focus on the conduct of individuals and indeed has been criti-
cized as a loose aggregation of behaviors. Another important feature of this perspective is
that it implicitly assigns responsibility (and blame) for disease causation and disease
avoidance to the individual.6-8

A more comprehensive perspective (and during the last decade, more influential)
views health lifestyle as ensuing from interactions between life situations and behavior
patterns, rather than from individuals’ decisions to avoid or accept certain health risks.9
This perspective regards health behaviors as only a part of a lifestyle, the other part being
structural societal elements that affect the behaviors. Weber’s discussion of lifestyle is
relevant here.10 In his discussion of status groups, he draws together structural conditions
(“life chances”) and personal choices (“life conduct”) as two basic, interdependent deter-
minants of lifestyle. Thus, for Weber, adopting a certain lifestyle was an involuntary act
that stemmed, in his view, from belonging to a status group. This conceptualization is per-
tinent to discussions of health lifestyle.

An obvious (although not so prevalent) outgrowth of the interest in lifestyle is an
attempt to characterize people’s lifestyles. This line of work focuses on the actors rather
than on the behaviors, or in methodological terms, on grouping the cases rather than the
items. In this approach, researchers look for population subgroups exhibiting similar
health behavior patterns.11-18 Findings from various studies are not consistent in terms of
the number and the content of the clusters. For example, Patterson et al.16 and Slater and
Flora17 found seven clusters (different in content) in two different U.S. samples. The clus-
ters Patterson et al.16 identified include, among others, hedonistic, passive, health-pro-
moting, and smoking lifestyles. Abel,11 on the other hand, found three clusters in both a
German sample and an American sample, and Mayer et al.15 found four clusters.

This description of different lifestyles is elaborated by three additional factors.
Researchers sometimes further characterize the subgroups in terms of their demographic
background.16 This ties the behaviors to structural elements and strengthens the broader
conceptualization of lifestyle. Less often, the subgroups are also characterized in terms of
their perceptions and attitudes.17 Unfortunately, the empirical connections are seldom
placed within a theoretical conceptualization. In addition, there are researchers who focus
on suggesting different interventions that should be targeted at these subgroups.14,17

This article pursues the direction of characterizing actors’ lifestyles (rather than their
behaviors). We have recently found19 that gradations in adopting a specific health behav-
ior (i.e., undergoing mammography upon the woman’s initiative, following a prompt, or
refusing to undergo) served as a lifestyle marker comprising structural and/or back-
ground variables (e.g., socioeconomic status [SES], age, education, ethnicity), other
health behaviors, and perceptual variables related to health in general and to cancer in par-
ticular. A further analysis of the same data set suggests it is plausible to cluster actors by
behaviors and attitudes so as to distinguish between various lifestyles.

In the present analysis, we focus on different types of lifestyle adopted by subgroups of
women, exploring clustering not only in terms of the behaviors and the demographic
background but also in terms of perceptions. An attempt will also be made to crystallize
all the elements into a theoretical conceptualization. We will compare the number and the
content of the subgroups in our sample to those in the literature and will test the validity of
our segmentation using an external criterion. Bearing in mind our earlier finding of finer
gradations in health behaviors, rather than a dichotomous engagement or nonengage-
ment, we view this approach as promising for deeper understanding and for designing
new interventions. We have seen that subgroups of women who engage in at least some
health-promoting behaviors but not in others are more likely to adopt change than those
who shun most health behaviors.
METHOD

Overview

In this analysis, we used data from a larger study on mammography screening behavior conducted by a large HMO in Israel. The larger study examined the effectiveness of several different strategies for approaching women with a message about the need to undergo mammography screening. There we attempted to unravel the factors that determined women’s adherence. The study used two main sources of information: (1) a questionnaire constructed for the purpose of the study, comprising structural and perceptual variables, which was administered via the telephone, and (2) the computerized National Breast Cancer Screening Program database, containing entries on performed mammograms and their respective dates, providing the “gold standard” for confirming the performance of mammography.

This article concerns only findings related to the performance of health behaviors and its association with demographic and perceptual variables.

Study Population

Fifteen hundred women residents of the city of Haifa, aged 50-74 (the age-group recommended in Israel for screening every two years, free of charge), were sampled from the insured members’ registry of eight primary care clinics (of Kupat Holim Clalit, the country’s largest HMO) in the city. The sample was designed to represent high-, middle-, and low-SES areas in the city. Area of residence in Israel is considered a good proxy for SES, routinely reported by the National Bureau of the Census. All women were sent a personal letter inviting them to attend a prescheduled mammography screening appointment. The present study commenced with a telephone interview carried out 8 to 10 weeks afterward. Fifteen percent of the sample was not located (leaving 1,275 women). Seven percent either refused to participate or were too ill; the remaining 1,183 women (93%) were interviewed, and 1,075 with no missing data were included in the analyses. It should be noted that under the Israeli Health Insurance Act, all residents are covered. Four health care providers (HMOs) supply these services. This study is based on the insured population registered with the largest HMO (about 70% at the time of data collection). Insured patients are organized through primary care clinics. The sample was drawn from the registered members (not necessarily clinic users at any time point).

Materials

The interview focused on adherence to mammography screening. It included questions about receiving the invitation; undergoing the test; reasons for nonattendance (if applicable); and demographic, behavioral, and perceptual variables hypothesized to be related to attendance.

The demographic questions included the following variables: age, SES as measured by area of residence, ethnic origin (Asia/Africa, Europe/America, and Israel), education, working outside the home, marital status, and religiosity.

The questions concerning health behaviors pertained to smoking, diet, physical activity, and periodic medical checkups. An attitudinal question asked whether it was worthwhile to undergo a medical examination when one feels healthy; this latter item taps into an attitude toward medical examination, as opposed to the actual behavior examined in
the former items. These variables comprise different aspects of health behaviors. They vary from daily, continuous practices that are either performed or abstained from to discrete behaviors that are performed periodically and involve utilization of the health care system.

Three items on smoking (i.e., Do you currently smoke? If so, how many cigarettes per day? Did you smoke in the past?) yielded four gradations: those who do not smoke at present and who never smoked, women who do not smoke at present but did smoke in the past, women who currently smoke up to 20 cigarettes per day, and those who smoke more than 20 cigarettes a day. The questions on smoking thus comprise dimensions of persistence, frequency, and intensity. As only a small percentage of Israeli women at this age-group smoke currently or did in the past (15% and 20%, respectively), details of their smoking history were not pursued in depth.

The questions on diet, related to a diet high in vegetables and fruits and low in fat, yielded three gradations: women who do not adhere to either feature, women who adhere to one of the features, and those who maintain a diet both low in fat and high in vegetables and fruits. The use of women’s perceptions as a comparative measure, rather than on serving number, relies on the high proportion of fruits and vegetables in the daily caloric intake of all ethnic groups in Israel.

Questions on physical exercise related to the kind of activity and its consistency. Respondents were asked, “Do you engage in physical activity? If so, which activity?” (elicited responses not reported here) and “Do you consistently engage in this activity, at least once every two weeks?” On the basis of these questions, three gradations were used: no engagement in physical activity, intermittent engagement, and consistent engagement. Consistency, rather than frequency, amount, or type, is central, as it attests to participants’ persistence and commitment.

Questions on periodic checkups asked whether the woman went for periodic dental, gynecological, and general checkups in the previous year. These questions were analyzed using a 4-point scale (ranging from not undergoing any of these checkups to undergoing all three checkups). We did not include questions on drinking habits, as national survey data indicate that this is an infrequent behavior among Israeli women in this age-group.

The perceptual questions focused on health appraisal and cancer. Health appraisal was measured by self-rating of perceived health in comparison to others of the same sex and age. Proximity to cancer included questions on familiarity with breast cancer patients and feeling close to them. Respondents were also asked about their familiarity with the mammography procedure and their acquaintance with other women who had undergone mammography.

Procedure

Eight to 10 weeks after the personal invitation for mammography was mailed, women were contacted by telephone and interviewed for 10 minutes by a trained interviewer. Evidence of mammography performance was cross-validated using information from the national data set on mammography performance.

Data Analysis

The data analysis focused on identifying patterns of engagement in health behaviors. The primary aim was to group participants by similarities in their health behaviors and to characterize their lifestyles in these terms. This was carried out by means of cluster analy-
sis, which demarcates samples or populations into subgroups according to their characteristics. In this analysis, the within-variance of each cluster is minimized, while the between-variance is maximized, and “a case is assigned to the cluster with the smallest distance between the case and the center of the cluster (centroid)” (p. 111). The cluster analysis was carried out on the domains of smoking, diet, physical exercise, periodic checkups, and an attitudinal question concerning medical examination when one feels healthy.

Participants were grouped on the basis of similarities in their health practices. After running a hierarchical cluster analysis to determine the number of clusters, we used a K-means cluster analysis procedure, which produces one solution for the number of clusters requested. The resulting clusters are not nested and do not overlap. Upon completion of the clustering process, we interpreted the meaning of the emerging clusters by examining the percentage of women who engaged in each health behavior in every cluster. It should be noted that the names assigned to the clusters are an interpretive description by the authors. The results are displayed in Table 1.

We then proceeded to further examine characteristics of the emerging subgroups (clusters), concentrating on demographic and perceptual variables. The clusters were described in terms of SES, age, ethnic origin, and work status.

Last, an external validation test of the cluster solution was conducted by using the health lifestyle clusters as the predictor of another health behavior: mammography screening. For this purpose, we conducted a multivariate logistic regression analysis, in which the health clusters served as the independent variable, the demographic and perceptual variables as covariates, and mammography screening as the dependent variable.

RESULTS

Cluster Results

The clusters included 1,075 women for whom all data on the relevant health behaviors had been received. The remaining women in the sample were dropped out of this analysis due to missing data for even a single variable. No single variable was responsible for a sizable portion of this exclusion, and thus no clear bias can be determined. Table 1 presents the women as divided into clusters: the “health-promoting” lifestyle is the largest (n = 474); the “ambivalent” or mixed lifestyle, which includes the smallest number of women (n = 168); and the “inactive” lifestyle, which is the second largest cluster (n = 433). Each cluster is marked by a different pattern of health behaviors. Moreover, significant differences (indicated by the p values) were found between the identified clusters in the rates of engaging in each of the health behaviors.

The health-promoting lifestyle is uniformly signaled by the adoption of health-promoting behaviors such as healthy diet, exercising, attending periodic medical checkups, and the avoidance of health risks such as smoking. Seventy-four percent of the women in the health-promoting lifestyle cluster adhere to a low-fat diet rich in vegetables and fruits. Similarly, 73% of these women exercise consistently. They all had at least one periodic checkup in the past year, and half of them had three such checkups by different doctors—a family doctor, a dentist, and a gynecologist. Not surprisingly, 94% of them believe one should visit the doctor even when one feels healthy. A mere 1.4% of these women concomitantly engage in the health-compromising behavior of smoking. It should be noted that more than one-quarter of the women in this cluster smoked in the past. The data sug-
gest that this group is marked by a high awareness of health issues: the active daily pursuit of activities (eating “right,” exercising) have displaced past health-compromising behaviors in a subgroup of this cluster.

The inactive cluster is marked by a very low percentage of women who exercise consistently or even intermittently (2.3% and 2.8%, respectively). They also undertake periodic medical checkups much less often than do women of the other two groups: 1.6% attended all three checkups in the past year (although about one-quarter went for a dental checkup), even though the majority of them believed they should do so. However, none of these women smoke currently and most never smoked. It should be noted that the low rate of engagement in health-promoting behaviors is relative only to women in the health-promoting cluster and not necessarily in absolute terms. For example, fully 83.6% of the women in the inactive cluster believe it is worthwhile to see a doctor even when one is well, but this is significantly less than the 94.5% who believe so in the health-promoting cluster. Likewise, 59.1% of women in the inactive cluster adhere to a diet low in fat and rich in vegetables. This may seem like a high percentage, but it is significantly lower than the 73.6% of the women in the health-promoting cluster. Women in the inactive cluster engage at much lower rates in all of the behaviors compared with the other two clusters (except diet).

Table 1. Health Practices of Women by Cluster (in percentages)

<table>
<thead>
<tr>
<th>Health Practices</th>
<th>Health Promoting</th>
<th>Ambivalent</th>
<th>Inactive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 474</td>
<td>N = 168</td>
<td>N = 433</td>
</tr>
<tr>
<td>Diet*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>3.0</td>
<td>14.9</td>
<td>7.4</td>
</tr>
<tr>
<td>One</td>
<td>23.4</td>
<td>38.7</td>
<td>33.5</td>
</tr>
<tr>
<td>Both</td>
<td>73.6</td>
<td>46.4</td>
<td>59.1</td>
</tr>
<tr>
<td>Smoking*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>70.3</td>
<td>—</td>
<td>81.8</td>
</tr>
<tr>
<td>Past</td>
<td>28.3</td>
<td>11.3</td>
<td>18.2</td>
</tr>
<tr>
<td>Current low*</td>
<td>1.4</td>
<td>54.8</td>
<td>—</td>
</tr>
<tr>
<td>Current high*</td>
<td>—</td>
<td>33.9</td>
<td>—</td>
</tr>
<tr>
<td>Checkup*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>—</td>
<td>12.5</td>
<td>13.1</td>
</tr>
<tr>
<td>One professional</td>
<td>16.7</td>
<td>47.0</td>
<td>49.0</td>
</tr>
<tr>
<td>Two professionals</td>
<td>32.0</td>
<td>28.6</td>
<td>36.3</td>
</tr>
<tr>
<td>Three professionals</td>
<td>51.3</td>
<td>11.9</td>
<td>1.6</td>
</tr>
<tr>
<td>Physical exercise*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>20.0</td>
<td>48.2</td>
<td>94.9</td>
</tr>
<tr>
<td>Intermittent</td>
<td>6.8</td>
<td>7.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Consistent</td>
<td>73.2</td>
<td>44.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Worthwhile to be examined when feeling good*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>3.0</td>
<td>5.3</td>
<td>7.9</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2.5</td>
<td>3.0</td>
<td>8.5</td>
</tr>
<tr>
<td>Yes</td>
<td>94.5</td>
<td>91.7</td>
<td>83.6</td>
</tr>
</tbody>
</table>

a. Eating many vegetables and fruits, avoiding fat.  
b. One pack per day or less.  
c. More than one pack per day.  
d. Family physician, gynecologist, dentist.  
*p < .001.
The ambivalent cluster is marked by a contrast between behaviors related to consumption—eating and smoking—and the other behaviors. Women in this cluster engage less in health-promoting behaviors than women in the health-promoting cluster. For example, less than half of them (44.6%) exercise consistently, and almost half (48.2%) do not exercise at all. They also undertake fewer medical checkups (e.g., 39.9% had a dental checkup in the previous year, compared with 75.7% in the health-promoting cluster), although they believe one should see the doctor even when one feels healthy. Yet, they engage more often in these behaviors than do women in the inactive cluster, and likewise, more of them believe in seeing a doctor when feeling healthy than do those in the inactive cluster (91.7% vs. 83.6%, respectively). However, their position vis-à-vis the inactive cluster reverses with respect to smoking and eating. It is most apparent in their smoking: about one-third of these women smoke two or more packs of cigarettes a day, and they all either currently smoke or smoked in the past. They are very different in this respect from the other two groups, in which the majority has never smoked. Women in the ambivalent cluster also adhere less to a healthy diet than do women in the other two clusters.

Women’s Background by Cluster Assignment

The three clusters can be further characterized by their background (Table 2). Women in the healthy cluster are more likely to belong to a high-SES group, and less than one-fifth of them belong to a low-SES group. The reverse holds for the inactive group: one-fifth of them belong to the high-SES group, and about half belong to the low-SES group. The ambivalent group is almost evenly divided between the three SES groups. A similar pattern exists with respect to education: the percentage of women with higher education is highest in the health-promoting lifestyle, intermediate in the ambivalent cluster, and lowest in the inactive cluster. A clear difference between the groups also emerges with respect to working outside the home: some 40% of the health-promoting and ambivalent groups work outside the home compared with 29.2 percent among the inactive group. The gradations are less coherent with respect to age and ethnicity, although the direction still holds. The inactive cluster includes a higher percentage of older women than the other two clusters. It also includes the highest percentage of women of Asian African descent and the lowest percentage of Israeli-born women.

Perceptions by Cluster Assignment

Women’s perceptions regarding their health and their “proximity” to cancer further illuminate the health clusters. In response to how they rate their health in comparison with other women their age, 87.8% and 86.2% of the health-promoting cluster and of the ambivalent cluster, respectively, view themselves as “same-as” or as “healthier than others” (Table 3). Significantly fewer women in the inactive cluster view themselves in this way (72.2%).

The same pattern emerges with respect to being cognizant of cancer in different dimensions: having heard about mammography, knowing women who had mammography as well as being close to one, and knowing women who had breast cancer. In all these dimensions, the health-promoting cluster leads, followed by the ambivalent cluster, then the inactive cluster. The three clusters did not differ significantly with respect to knowing someone close who had breast cancer.
**External Validation:**

**Predicting Mammography Performance**

To test the cluster solution against external criteria, we have attempted to predict another health behavior, one not included in the generation of the cluster solution, by means of cluster assignment. Mammography screening, a behavior on which we had
cross-validated information (from the computerized National Breast Cancer Screening Program database), was used. Women were classified into three groups: those who underwent mammography on their own initiative (self-screenees), women who underwent mammography following an invitation (attenders), and women who declined the invitation to undergo mammography (nonattenders). In the analysis, we did not consider women who underwent mammography due to diagnostic purposes or women for whom the National Breast Cancer Screening Program had no entry (probably due either to no prior performance of mammography or to miscoordination with small clinics; we preferred to analyze a smaller but a valid sample). Seven hundred ninety-six women were included in this analysis.

The percentage of women who underwent mammography on their own (self-screenees) was examined in each of the clusters. A clear pattern emerged: 16% of the women in the inactive lifestyle underwent mammography, 18.5% of the women in the ambivalent lifestyle, compared with 32.6% in the health-promoting lifestyle. A logistic regression model indicated that membership in the health-promoting cluster was a significant predictor of self-initiated mammography performance compared to the inactive lifestyle group (odds ratio: 1.72, \( p < .05 \), 95% CI: 1.15-2.59), even after controlling for all the demographic variables (SES, age, education, ethnicity, and working status). The ambivalent cluster was not significantly different from the inactive cluster in predicting mammography screening. As all demographic variables except SES did not significantly predict self-initiated mammography performance, we ran a similar analysis in which we predicted mammography performance using a more parsimonious model: cluster assignment as the predictor, controlling only for SES. In this analysis, the odds ratio of the health-promoting cluster, compared to the inactive cluster, was even higher (odds ratio: 2.04, \( p < .05 \), 95% CI: 1.38-3.01).

We also examined cluster assignment in the prediction of undergoing mammography either as self-initiated or by prompt as compared with not undergoing. The percentage of women in each health lifestyle (or cluster) who underwent mammography reveals a clear pattern. The results indicate that more women undergo mammography in the health-promoting lifestyle (72.3%) than in the ambivalent cluster (64.5%) and that women in the inactive cluster underwent mammography the least (61.5%). The logistic regression model indicated that membership in the health-promoting cluster was a significant predictor of mammography performance compared to the inactive lifestyle group (odds ratio: 1.66, \( p < .05 \), 95% CI: 1.20-2.29). The ambivalent cluster was not significantly different from the inactive cluster. However, once we controlled for SES, cluster assignment no longer predicted mammography.

**DISCUSSION**

The present study uncovered the segmentation of adult women into three health lifestyles: one health promoting, one inactive, and the last mixed or ambivalent. The health promoting cluster was characterized by a high adherence rate to all recommended behaviors. The inactive lifestyle can be described as doing little on both fronts: health promoting, on one hand, and health-compromising behaviors such as smoking, on the other hand (again, primarily in relation to the health-promoting cluster). The ambivalent cluster was marked by consumptive behaviors: smoking and relatively low adherence to principles of a healthy diet, along with moderate levels of health-enhancing behaviors. Relatively few women belonged to this subgroup.
Demographic and perceptual differences among the clusters further confirmed cluster validity. The data exhibited a clear pattern by which women in the health-promoting lifestyle had the most privileged circumstances in terms of SES, education, and work status. Women in the inactive lifestyle cluster had the least privileged circumstances, and the ambivalent group was mostly between the other two. These data strongly support the Weberian notion that life chances are related, if not determinate of, life conduct, that is, behaviors.

Additional external validation of the clustering was obtained by using the cluster assignment to predict another health behavior—mammography screening—on which we had an external information source. The logistic regression provided an illustration of the dynamics of the impact of structural and behavioral variables on another behavior. The clustering, which is based on behaviors, predicted self-initiated mammography performance, even after controlling for SES; however, it did not predict mammography performance compared with nonperformance if SES was controlled. This indicates that SES, a structural measure, is a powerful determinant and that lifestyle based solely on behaviors has limited predictive validity.

The finding that the clusters are also marked by significant differences in the women’s perceptions adds depth to the clustering and to the notion of lifestyle. This suggests that the cluster assignment is not only a function of the behaviors and background of the women but also reflects their thinking. The inclusion of the cognitive angle was reported previously by only a few researchers.17 This article confirms the need to consider cognitive elements as an integral part of a lifestyle. It should be noted that even though many women in the health-promoting cluster reported greater proximity and familiarity with breast cancer patients and with the mammography procedure, they did not perceive themselves as less healthy than other women their age. Clearly, these women distinguished between knowing about cancer and early detection and their own health status.

Indeed, the importance of the cognitive angle is reflected in the centrality of cognitive models in predicting health behaviors. The most influential models in health behaviors focus on cognitive elements—the Health Beliefs Model;23 the Theory of Reasoned Action;24-25 and more recently, the Precaution Adoption Process26 and the Transactional Model.27 Few, if any, of the studies inspired by these theoretical frameworks conceptualized health behaviors as part of a lifestyle. Rather, they targeted one health behavior at a time, relating to each as a distinct, discrete phenomenon, which exists in isolation from other health behaviors. Examples are bountiful: smoking,28 alcohol and drug use,29-30 family-planning behavior,31 exercise,32 child safety,33 home radon testing,34 weight loss,35-36 breast self-examination,37-40 to name just a few. The present work highlights the need to incorporate a lifestyle perspective into the cognitive models.

The clustering solution found in our work can be compared with those found in others that have based the clustering on several health behaviors.11,13,15-17 Our solution replicates Abel’s11 finding of three clusters, in both the American and the German samples he studied. The content of the clusters is similar as well. His first cluster, named “positive,” is marked by high scores on all lifestyle health measures and is similar to our “health-promoting” lifestyle. His second cluster, just as ours, does not exhibit coherent positive habits, and the third cluster is marked by “unfavorable standard health behaviors.”41 In his samples, the distinction between the second and the third cluster is less marked than in our sample, although in our sample as well, there are a few instances in which the order between the clusters is reversed (e.g., smoking, working outside the home). Our solution is different from the seven clusters found in Patterson et al.,16 the seven (different) clusters found by Slater and Flora,17 and the four clusters found by Mayer et al.15 We hypothesized
that a detailed solution of seven clusters is difficult to replicate, and this may be one of the reasons for the different solution in our work, compared to Patterson et al.16 and Slater and Flora.17 Another possible reason for the differences is that Slater and Flora17 and Mayer et al.15 included age as a defining marker of the cluster. Harris and Guten’s13 work cannot be compared as it concerns only protective health behaviors.

An inherent limitation of the study design is that, as in other works,12,41-42 our sample focused on a specific population segment (women aged 50 through 74). This resulted, for example, in that (1) drinking behavior was not included (because of its very low frequency in our women population of this age-group21), and (2) smoking was not measured in terms of package years (due to the relatively low rates of smoking—past and present—in the target population). However, the fact that we have findings similar to Abel’s,11 whose samples included a broader age-group and both women and men of different nationalities, mitigates the concern with regard to the generalizability of our results. An additional limitation is that some of the health behavior measures used in this study may appear crude. However, this did not undermine the study, as it was geared toward the assessment of lifestyle as expressed by associations between a variety of health behaviors and their combinations, rather than on in-depth specific behaviors.

**Implications for Practice**

The description of each variable in gradations provides a deeper understanding of phenomena and a possible venue for designing interventions. It can be clearly seen, in both the ambivalent cluster and the inactive cluster, that many women adopt a certain number of recommended health behaviors. Very few of the women in the inactive lifestyle, for example, undergo all possible three medical checkups that we asked about, but the majority attends at least one medical checkup. This attests to the possibility that health education campaigns have been somewhat successful in increasing the adoption of healthy habits. It also suggests that noncoherent habits, at least among the ambivalent cluster and less so among the inactive cluster, can be influenced, and possibly in the healthy direction. In an earlier analysis,19 we noted that positive health behaviors, whenever present, could be used as an anchor in moving people toward a more healthy lifestyle in other domains. For example, a woman who exercises consistently is a good candidate for persuasion to quit smoking; similarly, a doctor who sees a client for regular checkups can use the opportunity to discuss eating and smoking habits with her. It is clear that different health promotion campaigns should be targeted at the different groups. There is very little point in conveying the same message to everyone. These suggestions may be generalized to the population at large, as the sample was representative of the Israeli target population of women aged 50 to 74.

The coherent alignment of structural and perceptual variables with the behavioral-based cluster solution clearly attests that lifestyle is indeed more than an aggregation of behaviors. It lends credence to the conceptualization of lifestyle as a broadly based social experience, in which structural elements (life chances) give rise to behavioral conduct, possibly mediated by perceptions, and vice versa: behaviors (such as smoking or unsafe sexual practices) affect one’s life chances.11 It should be noted that risky health behaviors resulting in a lower health status and the worsening of one’s social circumstances are one (negative) alternative of the effect of behaviors on life chances. It could just as well be that knowing a woman who undergoes mammography encourages another to act likewise, thus enhancing the latter’s life chances.
References