The Ohio Presbyterian Homes initiated a holistic health care program (Personal Health Management System) within several of its retirement communities. Initial findings suggest that program participants experienced significant increases in their health and well-being while non-equivalent control group subjects did not. Conceptual and methodological issues are discussed as well as implications for the future.
Key Words: Health, Retirement

Assessing the Effect of a Personal Health Management System Within Retirement Communities: A Preliminary Investigation[1]

Lee R. Slivinske, MSSA[2] and Jordan I. Kosberg, PHD[3]

Introduction to Holistic Health

Current medical practice and health care systems have been widely criticized in recent years (Andreopoulos, 1974; Ardell, 1978; Tubesing et al., 1977). Such criticism has focused on issues such as quality of care, lack of coordination of health care services and resources, escalating costs, and the tendency to treat disease rather than individuals (Behrens, 1979; Kolb, 1979; Tubesing et al., 1977; White, 1975; Yahn, 1979). The holistic health care movement, which has been gaining support within the medical and other related professions, attempts to provide solutions to these problems (Behrens, 1979; Rosen, 1980; Yahn, 1979). The goal of holistic health is to prevent illness, increase life expectancy, improve the quality of life, and decrease health-related expenditures (Lugar, 1980; Pelletier, 1979; Poindexter, 1980).

Traditional medicine concentrates its effort on physical healing and typically disregards psychological and spiritual factors, even though they have been found to significantly affect the onset of illness and its outcomes (Grinker, 1973; Tubesing et al., 1977). Holistic health includes these important factors and actively incorporates them in its treatment strategies (Tubesing et al., 1977). Those strategies also include the development of an ongoing, healthy style of living that includes regular physical activity, good nutritional habits, stress management, and a sound physical and psychosocial environment (Crawford, 1980; Pelletier, 1979).

The tendency of modern medicine to isolate itself from other professions and its propensity toward specialization has resulted in a lack of coordination of health care services and resources. In order to counteract these forces, which result in the fragmentation of treatment and duplication of effort, holistic health calls for the interface of medical, religious, social service, and other health-related professions (Allen & Griffin, 1981; Engle, 1979). The integration of health-related disciplines should result in a more expeditious use of health care resources as well as ensure that all components associated with optimal health are taken into consideration. Treating the "whole" individual, coordinating health resources and services, and emphasizing preventive health should provide for a more economical, comprehensive form of health care (Tubesing et al., 1977). The quality of health care should also be enhanced. Therefore, individuals who practice holistic health principles should experience increased wellness and reduce their utilization of and expenditures for health services.

Personal Health Management System

The Ohio Presbyterian Homes (OPH), comprised of seven retirement communities throughout the state and a central office in Columbus, has become increasingly interested in holistic health. The belief that the body, mind, and spirit must be integrated to achieve optimal wellness is congruent with the orienting philosophy of the Ohio Presbyterian Homes and the spiritual tenets of self- and life-fulfillment (Allen & Griffin, 1981; Gillette, 1980). A holistic health care program, the Personal Health Management System (PHMS), was implemented in several OPH facilities in 1979. Residents, employees, and independently-housed retired persons living in surrounding communities are eligible to participate. The major goals of PHMS are (1) to improve the quality of life for PHMS participants and (2) reduce the costs for health care through the application of wellness concepts (Allen & Griffin, 1981).

The major components of PHMS include educational classes, physical exercise, and professional conferences. One-hour health education classes are

[1] The authors acknowledge the cooperation and assistance of administrators, staff, and study participants of the Ohio Presbyterian Homes.
[2] Department of Sociology, Anthropology, and Social Work, Youngstown State University, Youngstown, OH 44555.
[3] Department of Gerontology and Suncoast Gerontology Center, University of South Florida, Tampa, FL 33620.

held twice a week for 10 weeks. Classes are related to skill and knowledge development in the areas of stress management, nutritional awareness, self-responsibility, physical fitness, the immediate environment, and spirituality. Physical fitness classes are also held three days per week on a continuing basis. Participants perform aerobic exercises in a non-competitive group setting under the supervision of a physical fitness director. For some, increased strength, flexibility, and weight control are objectives, while others are attempting to maintain present levels of fitness.

Professional conferences are held with program participants early during the initial 10-week period. Each participant meets with a team of professionals — usually a physician, nurse, pastoral counselor, and physical fitness director. During the conference, participants take an active role in identifying and discussing lifestyle strengths and deficiencies with the professional team. Goals to be accomplished as well as the method for achieving them are formulated. A subsequent conference is held at the conclusion of the initial 10-week period to determine whether progress has been made, to reassess the plan, and provide encouragement if necessary.

Evaluation Methodology

The following section describes the initial phase of the evaluation of the PHMS program. As with any applied research regarding program effectiveness, the methodology was developed by the researchers and approved by program administrators for implementation by staff. Staff recruited participants and administered indices, and the researchers scored the instruments and analyzed the data. Four OPH facilities had active PHMS programs at the time of this evaluation.

Program Participants

All individuals who voluntarily sought to participate in PHMS were asked to engage in the evaluation. Fifty-three (53), or 80% met the criteria for inclusion in the study and agreed to participate. Respondents were required to be 62 years of age or older and could not be employed by OPH. Of those not included five were employees, two were under age 62, and seven declined to participate in the evaluation. Of the 53 respondents, 43 were residents of the Ohio Presbyterian Homes and 10 were retired persons living in the surrounding communities. An additional 14 elderly adults were randomly selected from resident and other listings of one facility and were utilized as a non-equivalent control group. Nine of these individuals lived in the community.

All subjects, on the average, were 76 years old, had 14 years of formal education, and had an approximate current annual income of $13,500. The majority of subjects were female (52) and Caucasian (65). Three-fourths had had professional or white-collar jobs prior to retirement or had a spouse in such an occupation. Finally, 23 subjects were married, and the remaining 42 who provided this information were widowed (30), single (9), or divorced (3).

Evaluation Design

A modified non-equivalent control group design was employed. Baseline measures (Time 1) were gathered at the beginning of each program for all respondents, and the same measures were obtained again 10–13 weeks and 20–23 weeks later at Times 2 and 3. The programs at the various facilities were begun in January, June, September, and October of 1981, and January and February of 1982.

Between Times 1 and 2, PHMS participants attended bi-weekly educational classes and tri-weekly physical fitness classes and participated in professional conferences. Between Times 2 and 3, participants continued to exercise three times per week and attend supplemental educational classes if desired. Members of the control group did not participate in any of these program activities.

Inasmuch as holistic health care purports to affect the comprehensive functioning of individuals, the PHMS evaluation utilized measures of overall wellness, specific types of functioning, and health condition rates (e.g., number of days ill and number of days hospitalized).

Wellness Index

Subjects were asked to complete a self-administered Wellness Index developed specifically for PHMS. The Wellness Index measures six important and interrelated areas of the lives of participants and yields one general measure of their overall level of functioning or well-being. The Wellness Index is comprised of six Likert-type subscales which measure physical health, morale, economic resources, ability to carry out the activities of daily living (ADL), level of spirituality, and social resources. Two of the subscales, morale and ADL, were modified versions of the Life Satisfaction Scale and the Scale on Activities for Daily Living developed by Neugarten, Havighurst, and Tobin (1961) and Pfeiffer (1975), respectively.

Pilot work using PHMS participants and similar populations ($n = 61$) had been conducted to determine whether the six subscales could be combined to form a comprehensive index of wellness and to test their reliability and validity. An R-factor, principal component analysis revealed that all subscales could be combined to form an overall index of wellness (factor scale), as had been predicted. The fact that these areas of the participants' lives were interrelated is consistent with the thinking of proponents of holistic health (Rosen, 1980; Salmon & Berliner, 1980; Tubesing et al., 1977) and the Comptroller General study (1977).

Each individual subscale as well as the entire Wellness Index (factor scale) was found to be highly reliable. The internal consistency (homogeneity) of each subscale was examined using Cronbach's alpha. The reliability coefficients of the subscales ranged from

.79 to .91, and the entire Wellness Index had a Theta reliability of .85.

The validity of the Wellness Index and its subscales was also examined and found to be acceptable. The concurrent validity of the subscales was examined by correlating the individual subscale scores with the independent judgment of subjects regarding their condition or state in each respective area. The correlations ranged from .41 to .69 and were all significant ($p < .001$). A one-way analysis of variance revealed that the Wellness Index had discriminant validity, as significantly different scores were obtained when the mean scores of independent elderly were compared to the mean scores of groups of less independent subjects ($F = 8.938$, $df = 60$, $p < .001$). Perceptions of professional staff and actual living arrangements were the criteria used to determine level of independence.

To make Wellness Index scores more interpretable for PHMS staff, a simple additive index was also formed using the same six subscales. The correlation between the factor scale and simple additive index was almost perfect ($r = .987$, $n = 61$). Since both indices yield identical results, the more interpretable additive index was used for PHMS and this preliminary evaluative effort.

Specific Types of Functioning and Health Condition Rates

Additional medical and other information was also obtained regarding wellness, health condition rates, and the utilization and cost of health care services. Self-reports regarding the number of times medical care was sought, number of days ill or hospitalized, and amount of money spent for health care (including prescriptions) over the three time periods were gathered. Finally, professional staff used the Krause-Weber Fitness Test to measure the muscular strength and flexibility of all participants three times during this study.

To summarize, indicators of program effectiveness included the following: (1) improved Wellness Index scores, (2) improved muscular strength and flexibility, (3) decreased utilization of health services, (4) decreased number of days of disability (days ill or hospitalized), and (5) reduction in the amount of money spent for health care.

Impact of PHMS

Wellness Indicators

Results indicate that virtually all subscale and Wellness Index scores increased over time for subjects in the experimental group while these scores remained relatively stable for those in the control condition. Table 1 summarizes the mean Wellness Index and subscale scores for experimental and control group members between Times 1 and 2 for all facilities. One-tailed, correlated t-tests revealed that all mean subscale and Wellness Index scores increased significantly for program participants. Wellness Index scores remained relatively stable for the control group even though certain subscale scores fluctuated upward or downward slightly. None of these fluctuations, however, was significant.

Inspection of Table 2, which summarizes the same measures for the experimental and control groups between Time 1 and Time 3, shows that most mean scores for respondents in the experimental condition continued to increase by Time 3 and remained significantly higher than Time 1 scores. Time 3 scores for the control group, in general, showed small decreases. Again, none of these changes for the control group was significant.

Medical Indicators

Muscular strength and flexibility scores increased over time for experimental group participants while the scores of control group members decreased at Time 2 then increased and slightly surpassed baseline measures by Time 3. Also, in general, small decreases appeared in the number of times medical care was sought, number of days ill, amount of money spent for medical care, and number of days hospitalized for PHMS participants. Control group members reported small increases for most of these indicators.

Tables 3 and 4, respectively, summarize the mean values for medical information for each group of respondents between Times 1 and 2 and Times 1 and 3. One-tailed, correlated t-tests revealed that experimental group participants experienced significant increases in muscular strength and flexibility between Times 1 and 2 as well as between Times 1 and 3. The mean scores of the control group decreased significantly at Time 2 but returned to their approximate former levels by Time 3.

Finally, between Times 1 and 2, the health care cost and utilization indicators such as the number of times medical care was sought, number of days ill, amount of money spent for medical care, and number of days hospitalized all showed very small decreases for experimental group members even though one-tailed, correlated t-test and Wilcoxon's tests revealed that none of these decreases was significant. By Time 3 the number of days ill and hospitalized continued to decrease while the number of times medical care was sought remained stable. The amount of money spent for medical care also increased slightly. Again, none of these changes was significant.

Control group members reported increases in the number of times medical care was sought and the number of days ill across Times 1, 2, and 3; the number of days hospitalized remained relatively stable at Time 2 and increased slightly by Time 3. The amount of money spent for medical care decreased by Time 2 and then rose past initial levels. Again, none of these changes was significant.

Interpretation of Findings

The results of this preliminary, evaluative effort suggest that the wellness of PHMS participants increased. Participants perceived improvements in their physical health, morale, economic resources, ability to carry out the activities of daily living, level of

Table 1. Mean Wellness Index and Subscale Scores, Standard Deviations, and *t*-Values for Times 1 and 2 for All Facilities

	Experimental Group						Control Group					
	Time 1		Time 2		*t*-test Time 1 vs Time 2		Time 1		Time 2		*t*-test Time 1 vs Time 2	
	$\bar{X}$	sd	$\bar{X}$	sd	t	*n*	$\bar{X}$	sd	$\bar{X}$	sd	t	*n*
Physical health	56.6	7.2	57.7	7.5	−1.71*	51	57.9	5.0	58.8	4.8	− .71	11
Morale	78.9	8.5	79.6	8.3	−2.10*	51	82.2	6.9	82.2	8.7	.00	11
Economic resources	38.0	6.1	39.0	5.2	−1.94*	51	38.8	5.9	39.2	5.3	− .43	12
ADL	53.9	7.3	55.1	7.7	−1.84*	51	58.2	6.7	59.8	6.0	− .95	12
Spirituality	42.1	6.6	43.6	6.2	−2.73**	51	44.7	7.8	42.7	6.9	1.56	12
Social resources	51.7	4.6	53.0	4.5	−2.38**	51	54.7	3.9	54.2	4.4	.63	12
Wellness index	320	27.9	328	29.3	−3.91***	51	338	22.9	337	24.0	.16	12

*$p < .05$
**$p < .01$
***$p < .001$

Table 2. Mean Wellness Index and Subscale Scores, Standard Deviations, and *t*-Values for Times 1 and 3 for All Facilities

	Experimental Group						*Control Group*					
	Time 1		Time 3		*t*-test Time 1 vs Time 3		Time 1		Time 3		*t*-test Time 1 vs Time 3	
	$\bar{X}$	sd	$\bar{X}$	sd	t	*n*	$\bar{X}$	sd	$\bar{X}$	sd	t	*n*
Physical health	56.9	7.5	58.5	7.9	−1.88*	41	57.0	5.5	56.7	5.3	.26	12
Morale	77.4	8.8	80.1	9.6	−3.31***	41	81.8	6.7	81.8	3.4	.06	12
Economic resources	37.9	5.6	39.0	5.1	−1.67*	41	38.2	6.1	38.3	4.6	− .09	13
ADL	53.9	7.3	56.6	7.9	−3.39***	41	57.7	6.7	58.8	6.2	−1.44	13
Spirituality	42.4	5.7	44.3	6.4	−2.96**	41	43.2	9.1	40.8	9.7	1.55	13
Social resources	51.3	4.7	52.8	5.3	−2.30**	41	54.4	3.8	53.2	5.4	1.14	13
Wellness index	319.5	27.6	332	31.9	−5.30***	41	334	26.1	330	24.7	1.05	13

*$p < .05$
**$p < .01$
***$p < .001$

Table 3. Medical Information Means, Standard Deviations, and *t*-values for Times 1 and 2 for All Facilities

	Experimental Group						Control Group					
	Time 1		Time 2		*t*-test Time 1 vs Time 2		Time 1		Time 2		*t*-test Time 1 vs Time 2	
	$\bar{X}$	sd	$\bar{X}$	sd	t	*n*	$\bar{X}$	sd	$\bar{X}$	sd	t	*n*
Muscular strength and flexibility	40.1	15.9	47.4	14.7	−4.80**	31	37.0	15.5	34.7	16.9	2.28*	11
Number of times sought medical care[a]	1.4	1.9	1.2	1.1	.67	40	.7	.9	.8	.9	− .32	11
Number of days ill[a]	1.4	1.8	.8	1.6	1.06	43	.2	.4	.4	.7	− .80	10
Amount of money spent for medical care[a]	$143.8	301.2	$71.2	86.0	1.57	38	$57.7	124.5	$36.0	45.3	.48	10
Number of days hospitalized[a]	.6	2.0	.3	1.0	.89	47	0.0	0.0	0.0	0.0	.00	9

[a]Some medical indicators were not normally distributed at Time 1, 2, or 3. Therefore, Wilcoxon's Test was used to substantiate the results obtained using the correlated t. Since the results were virtually identical, correlated t-test statistics are reported.
*$p < .01$
**$p < .001$

Table 4. Medical Information Means, Standard Deviations, and *t*-values for Times 1 and 3 for All Facilities

	Experimental Group						Control Group					
	Time 1		Time 3		*t*-test Time 1 vs Time 3		Time 1		Time 3		*t*-test Time 1 vs Time 3	
	$\bar{X}$	sd	$\bar{X}$	sd	t	*n*	$\bar{X}$	sd	$\bar{X}$	sd	t	*n*
Muscular strength and flexibility	38.7	14.5	49.4	13.9	−4.73*	22	37.1	15.5	38.0	16.5	− .47	11
Number of times sought medical care[a]	1.2	1.9	1.2	1.1	.08	35	.7	.9	1.8	2.8	−1.19	11
Number of days ill[a]	1.3	5.2	.3	.7	1.16	35	.2	.4	4.0	12.6	−1.00	11
Amount of money spent for medical care[a]	$113.6	286.9	$114.4	269.7	− .01	32	$59.7	124.0	$64.0	154.4	−1.06	10
Number of days hospitalized[a]	.4	1.9	.1	.5	.96	38	0.0	0.0	.6	1.8	−1.00	10

[a]Some medical indicators were not normally distributed at Time 1, 2, or 3. Therefore, Wilcoxon's Test was used to substantiate the results obtained using the correlated t. Since the results were virtually identical, correlated t-test statistics are reported.
*$p < .001$

spirituality, and quality of social resources and experienced increased muscular strength and flexibility. It had been hypothesized that elderly individuals who participated in the PHMS program (experimental condition) would develop healthier styles of living and experience such improvements.

It also had been hypothesized that PHMS participants would experience significant decreases in their personal cost for and utilization of medical care and services. Although many of the medical indicators moved in the predicted direction, none of these changes was significant. Perhaps a more comprehensive examination of these indicators over a longer period of time would provide more enlightening information.

One of the major methodological problems of this study was that experimental and control group participants did not have pre-experimental sampling equivalence; experimental respondents were volunteers, but control group members were randomly selected. Therefore, their method of recruitment was not similar. Time 1 measures as well as demographic characteristics such as age, sex, educational level, income, and marital status were examined to determine whether the experimental and control groups were equivalent at the beginning of the study. No significant differences were found between the experimental and control groups on these pre-test and other measures, with the exception of the following factors. The initial wellness scores of control group members were higher than those of the experimental group and approached significant levels ($t = -1.74$, $df = 65$, $p = .09$). The only subscale for which a significant difference appeared was that measuring social resources. Control group members reported having significantly more social resources ($t = -2.28$, $df = 65$, $p < .05$). In addition, control group members sought medical care significantly less often ($t = 2.13$, $df = 42.13$, $p < .05$) and reported having been ill fewer days; a finding which also approached statistical significance ($t = 1.73$, $df = 49.63$, $p = .09$). These findings suggest that control group members may have had a higher degree of wellness and more social resources at the onset of this initial evaluation, perhaps reflecting the fact that the majority of these respondents still lived in the community. Furthermore seven individuals (10%) refused to participate in this study. Although they did not appear different than those who agreed, no statistical comparisons could be made to determine whether the problems of self-selection were intensified. For these reasons — selection biases, selection bias interactions, or regression effects — the validity of this study may have been jeopardized.

Another major methodological problem was that of attrition. Data could not be gathered at Time 3 for approximately 30% of the respondents, especially program participants, because of vacations, illness, premature program termination, and administrative oversights. Respondents for whom data was gathered were compared to those for whom data was not collected for any reason. No significant differences were found on any wellness, medical, or demographic variables, with one exception. Participants for whom data was not collected tended to be those who had significantly higher initial rates of muscular strength and flexibility ($t = -2.35$, $df = 40$, $p < .05$). Perhaps these individuals tended to have less interest in completing the program than those whose muscular strength and flexibility were not as great.

Finally, it must be acknowledged that the kinds of information and activities included in PHMS are commonly available on television, in magazines, at senior citizen meetings, and elsewhere and may have been available to control group members. However, such external exposure to wellness concepts should have been equally available to experimental group members, although this assumption cannot be confirmed.

Given the nature of these methodological problems, the results of this preliminary evaluation must be interpreted with some caution. However, the fact

that experimental respondents showed consistent improvements in all facilities across a variety of time periods suggests that the intervention is producing these results, not selection bias interactions with history, maturation, and the like. Regarding possible regression effects, Campbell and Stanley (1963) state that the assumption of uniform regression between experimental and control groups becomes less likely in instances in which participants are clearly self-selected, particularly when the experimental group deliberately seeks out exposure to the intervention. Also, regarding selection biases, 90% of all subjects agreed to participate and, therefore, were considered to be representative of those who agree to participate in such programs and evaluations. Whether or not the selection-testing interaction or other factors systematically biased these results is unknown.

In addition, attrition was not considered to have posed a threat to this study because individuals for whom data were available at the conclusion of this study did not appear to be significantly different than those for whom data were not collected, with the exception of one previously discussed difference in muscular strength and flexibility. Furthermore, regarding the potentially confounding effect of external exposure to wellness concepts, it was assumed that program participants were exposed to more wellness concepts (PHMS plus external sources) than control group subjects (external sources only) and that it was the program that produced these findings. Finally, since program participants were elderly individuals known to Ohio Presbyterian Homes and not necessarily representative of other elderly populations, these results should be generalized with caution.

Implications for Future Work

Future research must be conducted to derive more definitive conclusions regarding the benefits of the integrated holistic approach to health care represented by PHMS. Future evaluative efforts at OPH will utilize a truly experimental design (randomly selecting subjects and randomly assigning treatments), so the methodological problems encountered in this initial study can be more adequately addressed. The measures used for this preliminary evaluation must also be reassessed to ensure that they capture all relevant changes in a meaningful way.

This preliminary effort in evaluating PHMS found some positive results, although not all the assumptions regarding the impact of this holistic health care were confirmed. The conceptual and methodological questions raised in this study must be answered in subsequent research efforts before these positive effects can be more confidently attributed to participation in PHMS. The replication of these findings will provide further evidence that holistic health care can positively affect the health and well-being of elderly individuals.

References

Allen, P., & Griffin, J. *A wholeness program for congregate living: A model for caring*. Paper presented at the Protestant Health and Welfare Assembly at the Concurrent Session on Aging, San Antonio, TX, March 3, 1981.

Andreopoulos, S. (Ed.). *Primary care: Where medicine fails*. Wiley, New York, 1974.

Ardell, D. B. Holistic health planning. In E. Bauman, A. I. Brint, L. Piper, & P. A. Wright (Eds.). *The holistic health handbook: A tool for attaining wholeness of body, mind, and spirit*. And/Or Press, Berkeley, CA, 1978.

Behrens, R. Climate ripe for marketing strategies: Health promotion. *Hospitals*, 1979, *53*(19), 99–100, 102–104.

Campbell, D. T., & Stanley, J. C. *Experimental and quasi-experimental designs for research*. Rand McNally, Chicago, 1963.

Comptroller General of the United States. *The well-being of older people in Cleveland, Ohio*. General Accounting Office, Washington, DC, 1977.

Crawford, R. Healthism and the medicalization of everyday life. *International Journal of Health Services*, 1980, *10*(3), 365–388.

Engle, G. L. The biomedical model: A procrustean bed? *Man and Medicine*, 1979, *4*, 257–275.

Gillette, R. D. Holistic medicine, wellness, and family medicine. *Journal of Family Practice*, 1980, *10*, 1093.

Grinker, R. R. *Psychosomatic concepts*. Jason Aronson, New York, 1973.

Kolb, L. Commentary: The biomedical model. *Man and Medicine*, 1979, *4*, 286–292.

Lugar, R. G. Wellness: The most effective health insurance. *Journal of the Indiana State Medical Association*, 1980, *73*, 344.

Neugarten, B. L., Havighurst, R. J., & Tobin, S. S. The measurement of life satisfaction. *Journal of Gerontology*, 1961, *16*, 134–143.

Pelletier, K. R. Holistic medicine: From pathology to prevention. *Western Journal of Medicine*, 1979, *131*, 481–483.

Pfeiffer, E. *Multidimensional functional assessment, the OARS methodology: A manual*. Duke University, Center for the study of Aging and Human Development, Durham, NC, 1975.

Poindexter, H. A. Health problems of older persons. *Journal of the National Medical Association*, 1980, *72*, 269–271, 274.

Rosen, A. H. Behavioral medicine: A comprehensive view of soma and psyche. *Journal of the Florida Medical Association*, 1980, *67*, 866–870.

Salmon, J. W., & Berliner, H. S. Health policy implications of the holistic health movement. *Journal of Health Politics, Policy, and Law*, 1980, *5*, 535–553.

Tubesing, D. A., Holinger, P. C., Westberg, G. E., & Lichter, E. A. The holistic health center project: An action research model for providing preventive, whole-person health care at the primary level. *Medical Care*, 1977, *15*, 217–227.

White, K. L. International comparisons of medical care. *Scientific American*, 1975, *233*(2), 17–25.

Yahn, G. The impact of holistic medicine, medical groups, and health concepts. *Journal of the American Medical Association*, 1979, *242*, 2202–2205.