

Health Behavior in a Kibbutz Population: Correlations among Different Modalities of Healthcare Utilization

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Abstract

Background: Alternative medicine use is increasing worldwide and the associated expenditures are significant. In Israel 19% of patients who consulted their family physician had also sought treatment by an alternative medicine practitioner.

Objectives: To explore the correlation between different modalities of healthcare utilization, health behavior, and health belief among adult members of a kibbutz (rural communal settlement). This unique study population enabled the use of a simplified quantitative model due to the minimal individual differences in cost and access.

Methods: Healthcare utilization data were obtained for 220 kibbutz members aged 15–70 years from patient medical files and self-administered questionnaires over a 45 month period. Patient visits to the family practitioner and other specialist physicians were tallied, and individuals reported alternative medicine consultations during the previous year. Multiple regression analysis was used to control for age, chronic disease, and other background characteristics.

Results: The mean number of patient FP visits was 3.6 per patient per year. Women and chronic disease sufferers visited the doctor more frequently. A patient's number of FP visits and other specialist physician visits were closely correlated, with each specialist physician consult resulting in an additional 0.64 FP visit for a given individual ($P=0.007$). Our analysis indicated that self-reported alternative therapy utilization was positively associated with the number of FP visits; patients reporting alternative therapy use visited their primary care physician once additionally per year ($P=0.03$). Low self-rated health status was correlated with increased likelihood of alternative therapy use (borderline significance).

Conclusion: These results suggest that a patient who seeks treatment from one type of healthcare practitioner will seek out other practitioners as well. This study supports the notion that unconventional therapies are used in conjunction with, rather than instead of, mainstream medical care.

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What motivates a person to visit a healthcare specialist? Are the influences upon a patient's decision similar when seeking help from a traditional medical doctor versus a practitioner of alternative medicine? The answers to these questions have important economic [1,2], social [3,4] and medical [5,6] consequences. The existence of organic disease itself, whether acute or chronic, clearly influences the frequency of physician visits by an individual patient. However, it is known that besides morbidity, the patient's decision to seek medical care is not random [7]. Background effects such as a patient's age and gender, economic status [8], psychosocial attitudes [9] and family [10] all influence the use of health services. Since these factors are often interrelated, there has been a recent trend for quantitative studies in the field to examine fewer variables within a homogenous population.

Alternative medicine use is increasing worldwide and the associated expenditures are significant. In the United States, national telephone surveys conducted in 1991 and 1997 revealed that among those questioned, alternative therapy use increased from 36% in 1990 to 46% in 1997 [11]. Alternative therapies were used most frequently for chronic conditions, including lower back pain, anxiety disorders, depression, and headaches. Fewer than 40% of alternative therapies were disclosed to physicians. The 1997 survey projected that the number of visits to alternative medicine practitioners in the U.S. actually exceeded the total visits to all primary care physicians. Total out-of-pocket patient expenditures related to alternative therapies were estimated at \$27 billion in 1997, comparable with the yearly out-of-pocket expenditures for all U.S. physician services [11]. A different U.S. survey conducted in 1996 revealed that female gender, higher education level and middle age were each statistically significant predictors of visits to alternative medicine practitioners [12].

One survey conducted in Israel revealed that 19% of patients who consulted their family physician had also sought treatment by an alternative medicine practitioner at least once previously. The most frequently used alternative therapies were homeopathy (35%), reflexology (19%), naturopathy (18%), and acupuncture (12%). Utilization rates were significantly associated with a patient's age (the elderly population over 65 years old had a low rate of utilization) and education level (those with academic degrees had a higher rate of utilization), but not with gender or country of origin [13].

An Israeli study on a kibbutz (rural communal settlement)

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indicated that of 830 questionnaire respondents, 16% had used alternative therapy during the previous 5 years. Popular therapies included homeopathy (31%), acupuncture (20%), and shiatsu (13%). There was a significant association between alternative therapy use and gender, with women representing nearly two-thirds of those reporting such treatments. A correlation between alternative therapy use and patient age was also identified, with the majority of reported alternative therapy users being between 40 and 65 years old [14].

Another Israeli study interviewed over 2,000 Jewish patients aged 45–75 years as well as 20 family physicians. Among those surveyed, 6% reported having visited an alternative medicine practitioner during the previous year. Most patients indicated that such consultations resulted from a sense of disappointment in the conventional medical treatments they had received. Nearly 40% of patients who had sought unconventional therapies continued to consult the family practitioner during the same period as their alternative treatments. Women were more likely than men to consult an alternative medicine practitioner, and alternative therapy users rated their health status more negatively than non-users. The users had a higher level of education than non-users, but the two groups did not differ in terms of age or economic status. According to this survey, both patients and family practitioners in Israel do not view unconventional medicine as a threat to conventional medicine, but rather as a complementary treatment modality [15,16].

In a fourth Israeli study, 350 patients attending outpatient conventional medicine clinics were surveyed. Overall, 36% reported the use of alternative therapy in the past, and 14% of them had used alternative therapy for their current medical condition. The patients most likely to visit an alternative medicine practitioner were highly educated, religiously non-observant, and female. No associations of age, perceived poor health status or satisfaction with the doctor-patient relationship were found between alternative therapy users and non-users [17]. An additional telephone survey of 450 Israeli adults indicated that 21% had used alternative therapy in the past [18].

To the best of our knowledge, this is the first study to directly compare the rates of visits to family practitioners and to alternative medicine practitioners. Our aim was to examine the correlation between the use of different healthcare methods within a well-defined homogenous kibbutz population.

Methods

Choice of study population

Our study population was chosen from among the residents of a kibbutz located in central Israel. A kibbutz was chosen as our study population for several reasons. Most importantly, we could minimize the number of interdependent variables to be incorporated in our health services utilization model via this group. Enabling factors such as cost and access of care could be largely removed from consideration, allowing us to focus on the roles that background and need factors played regarding medical care use.

At the kibbutz, a single family practitioner (and his occasional substitute) ran an open clinic three times a week. The clinic was available once during the daytime, once in the evening, and once on a Friday (a rest day for most Israeli workers), to enable kibbutz residents equal access to the physician. All kibbutz residents lived in close proximity to the clinic and thus had easy access to the doctor, independent of travel time and costs. Like all Israelis, kibbutz residents benefitted from comprehensive medical insurance. Co-payment for medical services was covered by the kibbutz and was not required of its members. In addition, the kibbutz provided transportation and covered 80% of alternative treatment costs. Because of the equality of socioeconomic status among kibbutz members, this factor was also largely eliminated from consideration.

Subjects

The sample group for this study consisted of kibbutz member couples and their offspring who were part of a study on interfamilial correlation in healthcare utilization. Only married couples having one or more joint biological children born in or prior to 1980 were included. These offspring were considered “grown children,” meaning those aged at least 15 years at study onset. Based on our observations, this is the age at which nearly all patients will visit the family physician unaccompanied by a parent and thus independent of direct parental influence.

Additional families whose members included a physician were excluded from our study, on the assumption that such a family often received intrafamilial medical aid in lieu of visiting the kibbutz family practitioner. Older married couples who were not kibbutz members, and thus had to pay out-of-pocket for their alternative therapy visits but not physician visits, were also excluded from this study.

Data collection

Data were collected from two sources: a) complete patient medical records in the kibbutz clinic for 1 January 1996 to 30 September 1999, and b) a self-administered questionnaire of all study participants.

Each individual's medical record was examined for a number of variables. The total number of visits to the kibbutz clinic's physician during the 45 month study period was tallied, based on date and doctor's signature. Visits to substitute family doctors at the clinic were included in this figure; visits to a nurse practitioner alone were not. Visits to all other physicians were tallied separately according to specialization, excluding routine breast examinations and gynecological examinations.

Chronic diagnoses for each individual were based on joint evaluation by the kibbutz family physicians and nurse practitioners. Diagnoses were grouped by category [Table 1], including severe, moderate and minor disorders. The grouping was based on face validity of the influence on morbidity and mortality. We also tested for total number of chronic conditions in each patient (a previously documented tool by Berkanovic et al. [19]); this analysis yielded nearly identical results to those

Table 1. List of chronic diagnoses grouped by severity

Minor diagnoses	Moderate diagnoses	Severe diagnoses
Anemia	Hypertension	Ischemic heart disease
Peptic ulcer disease	Hyperlipidemia	Congestive heart failure
Benign prostatic hypertrophy	Obesity	Neoplasms (except <i>in situ</i> skin cancer)
Hypothyroid	Peripheral vascular disease	Diabetes mellitus
Glaucoma	Asthma	Chronic renal failure with dialysis
Skin cancer <i>in situ</i>	Rheumatoid arthritis	Aortic regurgitation
Gout	Osteoarthritis	Aortic stenosis
Posterior vitreous detachment	Gastro-esophageal reflux disease	Aortic valve replacement
Multicystic breast disease	Retinitis pigmentosa	Parkinson's disease
Osteoporosis	Paroxysmal atrial fibrillation	Recurrent ventricular tachycardia
Cataract	Lymphedema	
Allergic rhinitis	Chronic active hepatitis	
Neurofibromatosis	Epilepsy	
	Carotid arterial atherosclerosis	

presented here (data not shown). Analysis based on the method of Berkanovic et al. is not shown because this method gives equal weight to very severe disease (e.g., metastatic cancer) and relatively minor conditions (e.g., anemia in a woman of childbearing age).

The second source of information for an individual's health status and utilization was a questionnaire sent via community mail. Non-respondents were given at least one reminder by telephone. Every individual was asked to provide biographical data, including the number of children, number of family members living at home, and years of education from first grade onwards. Respondents indicated whether they had consulted with an alternative medicine practitioner during the previous year, and if so, which modality of treatment was used.

Individuals were asked about lifestyle issues, such as smoking, vitamin use, and exercise. They also responded regarding prior treatment by a psychiatrist or psychologist. Finally, participants were requested to evaluate their own overall health status, as well as the course of action in hypothetical minor febrile illnesses for themselves and infants in their care.

Statistical analysis

In comparing the groups we used Student's *t*-test for continuous variables and the chi-square test for categorical variables. All tests were two-tailed. We used a multivariate linear regression model to control for potential confounders. In comparing the reported use of alternative medicine and family practitioner visits, we used the number of doctor visits as the dependent variable and alternative therapy use as the main independent variable controlling for age, chronic disease, and other background characteristics. Data analysis was performed on micro-computers with SSPS for Windows.

Results

A total of 220 kibbutz members from 58 different families met the study criteria. The ages of all individuals ranged from 15 to 70 years at study onset, with a mean age of 42.3 ± 17.0 years. This population had achieved a broad range of different

education levels, from high school to advanced degree university studies [Table 2].

The mean number of visits of each individual to the kibbutz family physician was 13.5 during the 45 month study period, or 3.6 visits per year. The number of patient visits to the kibbutz physician was not normally distributed; a logarithmic transformation nearly normalized this distribution curve and the study results were altered insignificantly. We will display all results using the number of physician visits (and not its logarithmic transformation) for the sake of presentability of this study's statistical model.

Due to the selection criteria in this study on intrafamilial healthcare utilization effects, our study population did not display a uniform age distribution. The kibbutz population in their thirties and forties was relatively underrepresented in our study.

The number of patient consults with other specialist physicians outside the kibbutz clinic (excluding routine breast examinations and gynecologist visits) was highly correlated with the number of visits to the family practitioner. There were an additional 0.64 visits to the kibbutz doctor for each additional consult to other physician specialists ($P = 0.007$ controlled for age, gender, and severity of chronic disease).

A total of 152 kibbutz members completed the self-administrated questionnaire. Of these, 47 (29%) reported alternative therapy use, with some reporting more than one

Table 2. Some background characteristics of the study population

	SD	No. of respondents	
Age, mean (yr)	42.3	17.0	220
Education, mean (yr)	14.4	2.8	143
Males, No. (%)	102 (46%)		220
Current smokers, No. (%)	20 (13%)		151
Self-health rating, median	3		152
Alternative therapy use, No. (%)	43 (29%)		150
Vitamin use, No. (%)	43 (29%)		149
Not physically active	63%		152

Self-health rating: 1 = excellent, 3 = good, 5 = poor.

modality of treatment. Shiatsu therapy was reported by 15 patients, reflexology by 11, acupuncture by 9, chiropractic by 8, massage therapy by 5, homeopathy and reiki by 3 each, and aromatherapy, Bach flowers, energy healing, meditation, and naturopathy by 1 each. Some of these therapeutic modalities were available at the kibbutz itself on a fee-for-service basis, such as shiatsu, reflexology, massage therapy, reiki, and energy healing, which may thus be overrepresented in this survey.

We employed logistic regression for the reported use of alternative therapy (as a dependant variable) to show that neither age nor chronic disease was associated with the use of such non-conventional therapies. We used linear regression for the number of visits to the kibbutz doctor (as a dependant variable) and found, as expected, that patients suffering from chronic disease visited their family doctor more frequently to a significant degree [Table 3].

The reported utilization of alternative treatments, when controlling for age, gender and chronic disease, was significantly correlated with a patient's number of family doctor visits. Reported alternative therapy use affected a patient's likelihood to visit the doctor to a similar degree than even the existence of severe chronic disease [Table 3].

The participants in the study were asked to rate their own health according to a scale that has been widely used in previous studies [19–22] as follows: 1 = excellent, 2 = very good, 3 = good, 4 = fair, and 5 = poor. We calculated the logistic regression for reported alternative therapy use (dependent variable), controlling for age, gender and chronic disease, and revealed that low self-health assessment was correlated with increased alternative medicine use (odds ratio = 1.54 for each level of self-health assessment, $P = 0.07$). Using a Mann-Whitney non-parametric test, we found that alternative medicine users had a lower level of self-health assessment than did non-users (difference of 0.4 level of assessment between the groups, $P = 0.04$). Within our statistical model, gender alone was associated with the use of alternative medicine, with women more likely to seek treatment from an alternative medicine practitioner (OR = 4.09, $P = 0.001$). As shown above, age and chronic disease were not correlated with alternative therapy use [Table 4]. Smoking status and physical activity level were not associated with the use of alternative therapy.

Discussion

The purpose of this study was to compare the use of different modalities of healthcare treatment, both conventional and unconventional, and their effect upon one another. Our unique study population of kibbutz members allowed an exclusive focus on the associations between visits to the family doctor, to other specialist physicians, and to alternative medicine practitioners, since enabling factors such as cost and access to medical care were equalized among our subjects. Healthcare

Table 3. Number of additional physician visits per year associated with each of the conditions below. Controlled for age, age-squared and gender (n = 150)

Independent co-variable	No. of additional family doctor visits per year	Significance
Minor diagnoses	0.95	0.005
Moderate diagnoses	0.62	0.02
Severe diagnoses	1.18	0.01
Alternative therapy use	1.02	0.03

Table 4. The likelihood of using alternative medicine treatments: a logistic regression model (controlling for age and age-squared). The odds ratio for self-health assessment indicates a shift of one level (n = 150)

Independent co-variable	Odds ratio	Significance
Minor diagnoses	1.00	NS
Moderate diagnoses	1.08	NS
Severe diagnoses	0.98	NS
Female gender	4.09	0.001
Self-health assessment	1.54	0.07

staff had extensive knowledge of each patient at the kibbutz clinic, thus our statistical model was able to control for chronic diseases as well.

The results of this study illustrate how an individual's preoccupation with health leads to higher levels of healthcare utilization in general. We found that for each additional consult to other physician specialists, the patient made an additional two-thirds of a visit to the kibbutz doctor ($P < 0.01$ controlling for age, gender and chronic disease). This association has been well documented by previous researchers [22,23], and was equivalent to 18% of the average number of annual family doctor visits within this population (3.6 kibbutz doctor visits per member per year) upon a patient's single consultation to a specialist physician. These results indicate that a patient who seeks medical care from one type of doctor will seek out other physicians as well.

Preoccupation with health was measured in our study additionally via patient-reported use of alternative medicine. In our study 29% of patients reported alternative therapy use during the previous year, a level within the 6–36% rate indicated by prior Israeli surveys [13–18]. When controlling for an individual's age, gender and chronic disease, we found a significant correlation between self-reported alternative therapy care seeking and a patient's number of visits to the family doctor, as shown by previous studies [15,16,21]. Self-reported alternative therapy use influenced a patient's likelihood to visit a physician to a similar degree than even the presence of severe chronic disease. This indicates the effect of health belief on an individual's health behavior.

Unconventional therapies were reported more frequently by women than by men (OR = 4.09, $P = 0.001$), confirming the results of several previous studies [11,12,14,15,16,25]. Even when adjusting for this marked gender difference, our analysis

OR = odds ratio

indicates that patients who use unconventional therapies were more likely to visit the family practitioner. This supports the notion that alternative health behaviors are generally used in conjunction with, and not instead of, mainstream medical care [24]. An individual who is more preoccupied with health will therefore seek out both conventional and unconventional therapies.

Finally, a patient's preoccupation with health may lead to higher levels of medical care utilization, whether involving conventional or unconventional treatment modalities. In our study, an individual's low self-health assessment was associated with an increased likelihood of alternative therapy use to a borderline level of significance (OR = 1.54 for each level of self-health assessment, $P = 0.07$). The presence of chronic disease, however, showed no correlation whatsoever with alternative therapy use [Table 4].

The findings of this study should be interpreted with several limitations in mind. All visits to the family practitioner related to a single physician and thus may not reflect a universal trend in patient attendance to primary care. The patients' use of alternative therapy was reported via self-administered questionnaire and not independently confirmed. The subjects in our kibbutz study population had, on average, a higher level of education than the general populace in Israel. Additionally, the inclusion criteria for this research resulted in members of strong nuclear families being overrepresented, and single-parent family members as well as unmarried individuals were underrepresented. Only grown children who chose to reside on kibbutz like their parents were included in our study; children who had moved away from kibbutz were not. The health behavior of those living off the kibbutz versus those included in this study may differ. There are also some problems with generalizing data from the kibbutz to Israeli society at large.

References

1. Broadhead WE, Gehlbach SH, deGruy FV, Kaplan BH. Functional versus structural social support and health care utilization in a family medicine outpatient practice. *Med Care* 1989;27:221-33.
2. Pelletier KR, Marie A, Krasner M, Haskell WL. Current trends in the integration and reimbursement of complementary and alternative medicine by managed care, insurance carriers, and hospital providers. *Am J Health Promot* 1997;12:112-22.
3. Westhead JN. Frequent attenders in general practice: medical, psychological, and social characteristics. *J R Coll Gen Pract* 1985; 35:337-40.
4. Paramore LC. Use of alternative therapies. *J Pain Symptom Manage* 1997;13:83-9.
5. Von Korff M, Wagner EH, Dworkin SF, Saunders KW. Chronic pain and use of ambulatory health care. *Psychosom Med* 1991;53:61-79.
6. DeSmet PA, D'Arcy PF. Drug interactions with herbal and other non-orthodox remedies. In: D'Arcy PF, McElnay JC, Welling PG, eds.

- Mechanisms of Drug Interactions. New York: Springer Publishing, 1996:327-52.
7. Ingham JG, Miller PM. Self-referral to primary care: symptoms and social factors. *J Psychosom Res* 1986;30:49-56.
 8. Shea D, Stuart B, Vasey J, Nag S. Medicare physician referral patterns. *Health Serv Res* 1999; 34:331-48.
 9. Connelly JE, Philbrick JT, Smith GR, Kaiser DL, Wymer A. Health perceptions of primary care patients and the influence on health care utilization. *Med Care* 1989;27:S99-109.
 10. Litman TJ. The family as a basic unit in health and medical care: a social-behavioral overview. *Soc Sci Med* 1974;8:495-560.
 11. Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkev S, Van Rompay M, Kessler RC. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA* 1998;280:1569-75.
 12. Bausell RB, Lee WL, Berman BM. Demographic and health-related correlates to visits to complementary and alternative medicine providers. *Med Care* 2001;39:190-6.
 13. Kitai E, Vinker S, Sandiuk A, Hornik O, Zeltcer C, Gaver A. Use of complementary and alternative medicine among primary care patients. *Fam Pract* 1998;15:411-14.
 14. Hermoni D, Kafman M, Kitai E. Alternative medicine use in a kibbutz community. *Harefuah* 1998;134:935-9 (Hebrew).
 15. Bernstein JH, Shuval JT. Nonconventional medicine in Israel: consultation patterns of the Israeli population and attitudes of general practitioners. *Soc Sci Med* 1997;44:1341-8.
 16. Bernstein JH, Shmueli A, Shuval JT. Consultations with practitioners of alternative medicine. *Harefuah* 1996;130:83-5 (Hebrew).
 17. Cohen B, DeKeyser F, Wagner N. Reactions of patients to complementary medicine. *Harefuah* 2000;139:263-6 (Hebrew).
 18. Kafman M, Hermoni D, Kitai E. Alternative or complementary medicine? *Harefuah* 1996;131:46-50 (Hebrew).
 19. Berkanovic E, Telesky C, Reeder F. Structural and social psychological factors in the decision to seek medical care for symptoms. *Med Care* 1981;19:693-709.
 20. Newacheck PW, Halfon N. The association between mother's and children's use of physician services. *Med Care* 1986;24:30-8.
 21. Pope GC. Medical conditions, health status, and health services utilization. *Health Serv Res* 1988;22:857-77.
 22. Fylkesnes K. Determinants of health care utilization - visits and referrals. *Scand J Soc Med* 1993;1:40-50.
 23. Murphy JF, Hepworth JT. Age and gender differences in health services utilization. *Res Nurs Health* 1996;19:323-9.
 24. Druss BG, Rosenheck RA. Association between use of unconventional therapies and conventional medical services. *JAMA* 1999;282:651-6.
 25. Meininger JC. Sex differences in factors associated with use of medical care and alternative illness behaviors. *Soc Sci Med* 1986; 22:285-92.

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A man cannot be too careful in his choice of enemies

Oscar Wilde, 19th century Irish writer and wit