

Perceptions, knowledge, and attitudes toward complementary and alternative medicine among Saudi patients with vitiligo

Mohamed Elzahrani^{1,2}, Abdulaziz Aleid^{1,2}, Abdullah Alhwamani^{1,2}, Sultan Altamamy^{1,2}, Raad Almalki^{1,2}, Abdulmohsen AlKushi^{1,2,3}, Mohammed AlJasser^{1,2}, Zeeshan Feroz^{2,3} ✉

¹College of Medicine, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia. ²King Abdullah International Medical Research Center, Riyadh, Saudi Arabia. ³Basic Sciences Department, College of Science and Health Professions, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia.

Abstract

Introduction: The use of complementary and alternative medicine (CAM) in dermatology has been increasing in recent years. Patterns of CAM use by vitiligo patients have not previously been assessed in Saudi Arabia. Therefore, it is worth exploring the perceptions, knowledge, and attitudes of Saudi vitiligo patients toward CAM.

Methods: A cross-sectional study was conducted for 12 months among Saudi vitiligo patients at King Abdulaziz Medical City in Riyadh. A validated self-administered questionnaire, comprised of four sections, was used to collect the data. Descriptive analysis was used, and a chi-squared test was used to determine the association between dependent and independent variables.

Results: Two hundred patients with vitiligo were enrolled, 56% of whom were female. The average age was 31.6 ± 15.45 years. Approximately 52% of the patients were either current or previous users of CAM. Among the patients, 44.5% had been asked by their dermatologist about their CAM use, and 18.5% preferred not to disclose their CAM use. Social media was the most common source of information for CAM (28%).

Conclusions: More than half of the vitiligo patients in our study used some form of CAM. The most popular remedies were honey (37%), *Nigella sativa* (29%), and olive oil (29%).

Keywords: complementary and alternative medicine, Saudi, vitiligo, honey

Received: 4 June 2020 | Returned for modification: 22 July 2020 | Accepted: 2 September 2020

Introduction

Vitiligo is a disorder characterized by depigmented white skin patches due to the autoimmune destruction of melanocytes. Vitiligo affects 0.5% of the world population (1). Depigmentation of the skin can be especially apparent in people with darker skin tones, such as people of Middle Eastern, South Asian, and African origin, leading to major psychological distress (2). Vitiligo is divided into two types: segmental and non-segmental. Non-segmental vitiligo is the most common type and is likely to expand after development, whereas segmental vitiligo is a less common type that is unilateral and more stable (3).

There are limited treatment options for vitiligo, ranging from topical immunomodulators to surgical therapies. Treatment is not effective in all patients and does not cure the disease (1). In localized vitiligo, topical corticosteroids or calcineurin inhibitors may be utilized. Cutaneous atrophy is a major issue with prolonged topical corticosteroid treatment, especially with class 1 corticosteroids (4). If the body surface area affected by vitiligo exceeds 20%, then the first-line treatment is narrowband UVB monotherapy. In a meta-analysis of non-surgical therapies, narrowband UVB showed the highest success rate, 63%, compared to methoxsalen plus UVA at 51% (5). Phototherapy, although effective at times, is inconvenient and time consuming because the patient must come to the hospital for treatment. Even after achieving successful repigmentation, 40% of patients relapse (6).

Due to unsatisfactory response to treatment, frequent side effects, and high relapse rates from conventional therapies, some vitiligo patients may choose to pursue other sources of treatment

such as complementary and alternative medicine (CAM). Although studies on CAM use among patients with skin diseases in general have been conducted in Saudi Arabia (7), there are no studies on the use of CAM in vitiligo patients. This study assesses the perceptions, knowledge, and attitude toward CAM among Saudi patients with vitiligo.

Materials and methods

This was a cross-sectional study conducted at King Abdulaziz Medical City (KAMC) in Riyadh, Saudi Arabia. The study was approved by the Institutional Review Board (IRB) at King Abdullah International Medical Research Center on September 17th, 2018 (Approval no. RYD-18-419812-149638).

Saudi vitiligo patients were recruited at the phototherapy unit of the dermatology outpatient clinic from August 14th, 2018 until August 22nd, 2019. Informed consent was obtained from all patients enrolled. All willing participants were included except those that did not speak either Arabic or English.

A bilingual (Arabic and English) validated questionnaire (8) was acquired, modified, and revalidated. Two experts in dermatology and CAM were contacted for content validation. Clarity, objective coverage, and the absence of leading and double-barreled questions were assessed. The questionnaire was found to be clear and to cover the objectives of the study. Following expert content validation, a pilot study of 35 Saudi vitiligo patients was carried out. The data collected from the pilot study were analyzed and yielded a Cronbach's alpha score of 0.86.

The validated questionnaire used was comprised of 23 ques-

✉ Corresponding author: zeeshan_feroz2005@yahoo.com; ferozz@ksau-hs.edu.sa

tions divided into four sections: demographics, knowledge, attitudes, and perceptions (assessed through six Likert scale questions). A sample size of 197 was determined with a confidence interval of 0.95 to represent the population of Saudi vitiligo patients at the hospital. The number of vitiligo patients visiting the phototherapy unit annually is approximately 400 patients.

The data were coded and analyzed using Statistical Package for the Social Sciences (SPSS) version 23 (SPSS Inc., Chicago, IL, USA). Data were presented as percentages, frequency tables, and bar charts. Cross tabulation with the chi-squared test was used to determine the association between independent variables (age category, sex, level of education, employment and occupation, marital status, and residence) and the dependent variables in Sections 2 and 3 (knowledge and attitudes). A Likert-type scale was utilized to assess the perceptions and beliefs toward CAM, and a perceptions and beliefs score was constructed with a value between 6 and 30 based on the six statements with five points each. Perceptions and beliefs were analyzed using a *t*-test and one-way ANOVA. Missing data were addressed by discarding questionnaires that had any missing answers. Questionnaires that had two answers chosen where one was needed were also discarded. Instructing the participants how to correctly complete the survey ensured that the questionnaires were filled out correctly. The statistical significance value was set at less than 0.05 with a confidence interval of 0.95.

Results

Sociodemographic data

A total of 200 patients were enrolled. Females comprised 56% of participants (Table 1). The mean age was 31.6 ± 15.45 years. The most frequent level of education stated by patients was higher education (37%). Most patients were single (46.5%) and employed in the government sector (32.5%). Almost all the participants lived in the city rather than in rural areas. Approximately 52% of patients used some form of CAM (Table 2).

Table 1 | Patient characteristics (n = 200).

Characteristics	Frequency	Percentage
Age:		
Under 18	8	19.0%
18–30	64	32.0%
31–45	58	29.0%
46–60	35	17.5%
Over 60	5	2.5%
Sex:		
Male	88	44.0%
Female	112	56.0%
Education:		
No formal education	19	9.5%
Elementary	25	12.5%
Intermediate	27	13.5%
High school	55	27.5%
Higher education	74	37.0%
Social status:		
Married	90	45.0%
Single	93	46.5%
Divorced	8	4.0%
Widowed	9	4.5%
Employer:		
Government	65	32.5%
Private sector	13	6.5%
Student	60	30.0%
Unemployed	62	31.0%
Residence:		
Urban	199	99.5%
Rural	1	0.5%

Table 2 | Use of complementary and alternative medicine (CAM) among participants (n = 200).

Characteristics	CAM users	Non-CAM users	p-value
Age:			.051
Under 18	16 (15.4%)	22 (22.9%)	
18–30	35 (33.7%)	29 (30.2%)	
31–45	34 (32.7%)	24 (25.0%)	
46–60	14 (13.5%)	21 (21.9%)	
Over 60	5 (4.8%)	0 (0.0%)	
Sex:			.101
Male	40 (38.5%)	48 (50%)	
Female	64 (61.5%)	48 (50%)	
Education:			.092
No formal education	12 (11.5%)	7 (7.3%)	
Elementary	12 (11.5%)	13 (13.5%)	
Intermediate	18 (17.3%)	9 (9.4%)	
High school	21 (20.2%)	34 (35.4%)	
Higher education	41 (39.4%)	33 (34.4%)	
Social status:			.741
Married	47 (45.2%)	43 (44.8%)	
Single	46 (44.2%)	47 (49.0%)	
Divorced	5 (4.8%)	3 (3.1%)	
Widowed	6 (5.8%)	3 (3.1%)	
Employer:			.068
Government	28 (26.9%)	37 (38.5%)	
Private sector	8 (7.7%)	5 (5.2%)	
Student	28 (26.9%)	32 (33.3%)	
Unemployed	40 (38.5%)	22 (22.9%)	
Residence:			> 0.99
Urban	103 (99.0%)	96 (100.0%)	
Rural	1 (1.0%)	0 (0.0%)	
Total	104 (52.0%)	96 (48.0%)	

CAM = complementary and alternative medicine.

Patients' knowledge of CAM

The most frequently used form of CAM was honey (37%), followed by *Nigella sativa* (29%) and olive oil (29%; Fig. 1). Interestingly, four patients stated that dairy products are beneficial for vitiligo, and two patients found that stopping dairy products was beneficial. Two patients mentioned that sulfur water was beneficial for vitiligo and two other patients stated that tamarisk tree extract was beneficial. Sunbathing was stated as beneficial for vitiligo by one patient. *Ginkgo biloba* was known to be beneficial for vitiligo in 10.5% of patients. Common sources of information included social media (28%), family members (25%), and other vitiligo patients (24%). Females were more likely to use henna and *Sausurea costus* ($p = 0.01$ and $p < 0.01$, respectively). Males were more likely to use honey ($p = 0.01$). Patients with higher education were

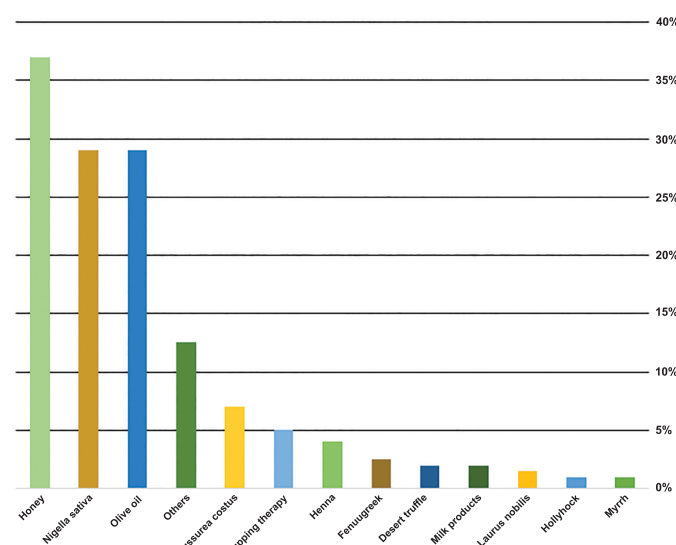


Figure 1 | Frequently used forms of complementary and alternative medicine (CAM).

more likely to use *Ginkgo biloba* ($p = 0.02$). Older patients were more likely to use olive oil ($p < 0.01$) and *Nigella sativa* ($p < 0.01$).

Patients' knowledge of CAM

The most common reason (35.6%) for using CAM was patients' belief in its benefits for vitiligo (Fig. 2). Although more than half of patients had used CAM at some point, only 19% were current users. Approximately half of the patients (44.5%) were asked by their dermatologist about their possible use of CAM. Some patients (18.5%) preferred not to inform their dermatologist about their use of CAM, even if asked. Most users (45.6%) do not use CAM regularly (Fig. 3). CAM and conventional medications were used concurrently in 41% of patients.

Patients' perceptions and beliefs toward CAM

The score constructed to assess patients' perceptions and beliefs toward CAM had a mean of 16.8 ± 3.8 . The highest score recorded was 26 out of 30, and the lowest was 6. Patients that tried CAM in the past and patients currently using CAM both had more positive perceptions toward CAM than those that had not tried it ($p < 0.01$, both). Patients using prophetic medicine modalities such as olive oil, cupping therapy, honey, and *Nigella sativa* had more positive

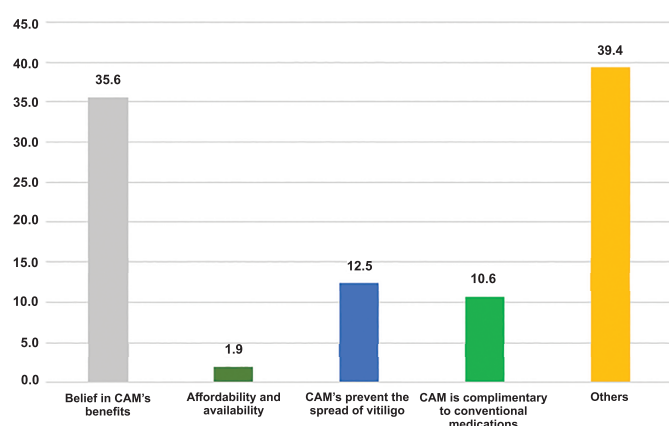


Figure 2 | Reasons for using complementary and alternative medicine (CAM).

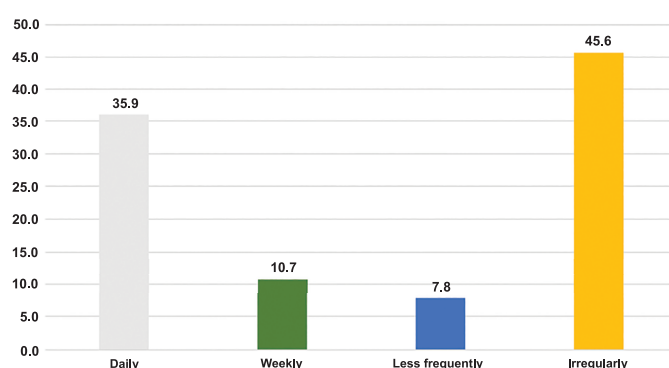


Figure 3 | Frequency of use of complementary and alternative medicine (CAM).

Table 3 | Patients' beliefs and perceptions toward complementary and alternative medicine (CAM).

Statements	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
1. CAM is safer than conventional medicine	42 (21.0%)	24 (12.0%)	90 (45.0%)	27 (13.5%)	17 (8.5%)
2. Conventional medicine could be replaced by CAM	42 (21.0%)	53 (26.5%)	66 (33.0%)	30 (15.0%)	9 (4.5%)
3. CAM can cure vitiligo	21 (10.5%)	33 (16.5%)	106 (53.0%)	30 (15.0%)	10 (5.0%)
4. CAM can interact with other medications	13 (6.5%)	18 (9.0%)	81 (40.5%)	60 (30.0%)	28 (14.0%)
5. CAM is effective in treating vitiligo	18 (9.0%)	19 (9.5%)	105 (52.5%)	42 (21.0%)	16 (8.0%)
6. CAM has no side effects	23 (11.5%)	39 (19.5%)	84 (42.0%)	43 (21.5%)	11 (5.5%)

CAM = complementary and alternative medicine.

perceptions toward CAM ($p < 0.01$, for all four CAM modalities). Patients that tried henna as a cosmetic option and those using *Polypodium leucotomos* supplements for managing vitiligo also had a more positive perception toward CAM ($p < 0.01$ and $p = 0.02$, respectively). Patients that used dairy products and desert truffles also had more positive perceptions toward CAM ($p = 0.01$ and $p < 0.01$, respectively). A statistically significant association between weekly use of CAM and better perceptions toward CAM compared to less frequent, irregular, and even daily use was present ($p < 0.01$). The statements used in this section and the frequency and percentage of each option are found in Table 3.

Discussion

CAM has become a more popular option in dermatology (9) as well as medicine in general (10) in recent decades. Although no study, to our knowledge, indicates a prevalence of CAM among Saudi vitiligo patients, the use of CAM among dermatology outpatients in Saudi Arabia was found to be approximately 40% (7). The prevalence of CAM use in Saudi Arabia in general ranges from 21.6% to 90.5% (11). More than half of Saudi vitiligo patients in this study (52%) have used some form of CAM at some point in their lives. This may be explained by the chronic nature of vitiligo compared to many other dermatological conditions as well as the slow treatment response.

The mainstay of treatment of generalized vitiligo is narrow-band UVB phototherapy, which requires two to three sessions of phototherapy per week on nonconsecutive days (4) for a duration of months to years, with better treatment response seen at longer treatment durations (12). Frequent clinic visits, long treatment duration, risk of relapse, and side-effects such as xerosis and pruritus may influence patients' decision to pursue alternatives such as CAM, and may account, in part, for the high prevalence of CAM use in our study population because the study population was comprised of patients recruited from the phototherapy unit at our hospital.

Honey, *Nigella sativa* (the "black seed" of prophetic medicine), and olive oil were the three most common types of CAM used by vitiligo patients in our study. All three remedies are mentioned in prophetic medicine, and therefore prophetic medicine might be considered one of the more important sources of information for Saudi patients with vitiligo.

Vitiligo occurs due to the autoimmune destruction of melanocytes by cytotoxic T-cells in genetically predisposed individuals. Furthermore, melanocytes in patients with vitiligo are more susceptible to oxidative stress (3). Honey was found to have superior outcomes compared to silver sulfadiazine in the treatment of burns (13). The antimicrobial and antioxidant effects of honey are well documented and can potentially be useful in vitiligo (14, 15). Extracts prepared from *Nigella sativa* and thymoquinone, a phytochemical found in *Nigella sativa*, have been shown to increase pigmentation without significant side effects (16). Moreover, Ni-

gella sativa and thymoquinone have anti-inflammatory and antioxidant effects (17). The efficacy of *Nigella sativa* oil was compared to fish oil in a double-blinded randomized controlled trial of 52 vitiligo patients. Patients that applied *Nigella sativa* oil twice daily for 6 months were found to have a more statistically significant decrease on the vitiligo area severity index (VASI) than patients using fish oil. Treatment was not associated with any side effects (18). Olive oil was commonly chosen by our patients. Phenolic acids found in olive oil have antioxidative as well as anti-inflammatory properties (19). Olive oil was also found to be protective from acute radio-dermatitis if given as prophylaxis (20).

Some participants mentioned using types of CAM that might be detrimental to their condition, such as sun-bathing. Sun exposure might help in improving vitiligo; however, excessive sun exposure might lead to sunburn and subsequently to the appearance of new vitiligo patches. In addition, some patients stated that they use creams and herbs whose names are unknown to them, and that they purchased from apothecaries or traditional healers. Several participants have used apple cider vinegar, which may lead to chemical burns if applied to the face or body because it contains approximately 5% acetic acid (21). Chemical burns might lead to the development of new vitiligo lesions and therefore worsen the condition. In addition, the unwillingness of participants (18.5%) to inform their physician of their use of CAM is concerning and requires further study.

CAM options with some evidence of efficacy in vitiligo, such as

Ginkgo biloba (22) and *Polypodium leucotomos* (23), were less commonly mentioned by our study patients. In a placebo-controlled, double-blinded study of 52 patients, patients given *Ginkgo biloba* showed a statistically significant cessation of progression of vitiligo compared to patients receiving a placebo. The effects were attributed to the immunomodulatory and antioxidative properties of *Ginkgo biloba* (22). *Ginkgo biloba* was mainly used by better-educated patients, whereas less-educated patients used unproven options. Therefore, increasing awareness among Saudi vitiligo patients about CAM options with available scientific evidence is required.

Our study has some limitations. The study reflects the experiences of the participants rather than any objective assessment of CAM in vitiligo. Another limitation is not assessing the clinical characteristics of vitiligo.

Conclusions

More than half of the vitiligo patients in our study used some form of CAM. The most popular remedies were honey, *Nigella sativa*, and olive oil. Due to the high prevalence of CAM use among Saudi patients with vitiligo, increasing awareness and public education might be required. On the other hand, a better future understanding of CAM use among patients with skin diseases might help identify effective therapies. Studies on CAM in dermatology in Saudi Arabia seem to be limited compared to other fields. Therefore, more studies in this area are required in our community.

References

- Boniface K, Seneschal J, Picardo M, Taieb A. Vitiligo: focus on clinical aspects, immunopathogenesis and therapy. *Clin Rev Allergy Immunol*. 2018;54:52–67.
- Pahwa P, Mehta M, Khaitan BK, Sharma VK, Ramam M. The psychosocial impact of vitiligo in Indian patients. *Indian J Dermatol Venereol Leprol*. 2013;79:679–85.
- Ezzedine K, Eleftheriadou V, Whittom M, Geel NV. Vitiligo. *Lancet*. 2015;386:74–84.
- Bologna J, Schaffer JV, Cerroni L. *Dermatology*. 4th ed. Philadelphia: Elsevier; 2017. Chapter 66, Vitiligo and other disorders of hypopigmentation; p. 1092–4.
- Njoo MD, Spuls PI, Bos JD, Westerhof W, Bossuyt PM. Nonsurgical repigmentation therapies in vitiligo. *Arch Dermatol*. 1998;134:1532–40.
- Cavaliere M, Ezzedine K, Fontas E, Montaudie H, Castela E, Bahadoran P, et al. Maintenance therapy of adult vitiligo with 0.1% tacrolimus ointment: a randomized, double blind, placebo-controlled study. *J Invest Dermatol*. 2015;135:970–4.
- Alghamdi KM, Khurram H, Al-natour SH, Alghamdi W, Mubki T, Alzolibani A, et al. Use of complementary and alternative medicine among dermatology outpatients. *J Cutan Med Surg*. 2015;19:570–9.
- Kamal FO, Magadmi RM, Hagraas MM, Magadmi B, AlAhmad RA. Knowledge, attitude, and beliefs toward traditional herbal medicine use among diabetics in Jeddah Saudi Arabia. *Complement Ther Clin Prac*. 2017;29:207–12.
- Landis ET, Davis SA, Feldman SR, Taylor S. Complementary and alternative medicine use in dermatology in the United States. *J Altern Complement Med*. 2014;20:392–8.
- Builders PF. Introduction to herbal medicine. In: Builders PF, editor. *Herbal medicine*. London: IntechOpen; 2019. p. 1–9.
- Alrowais NA, Alyousefi NA. The prevalence extent of complementary and alternative medicine (CAM) use among Saudis. *Saudi Pharm J*. 2017;25:306–18.
- Bae JM, Jung HM, Hong BY, Lee JH, Choi WJ, Lee JH, et al. Phototherapy for vitiligo. *JAMA Dermatol*. 2017;153:666–74.
- Aziz Z, Hassan BA. The effects of honey compared to silver sulfadiazine for the treatment of burns: a systematic review of randomized controlled trials. *Burns*. 2017;43:50–7.
- Ahmed S, Sulaiman S, Baig AA, Ibrahim M, Liaqat S, Fatima S, et al. Honey as a potential natural antioxidant medicine: an insight into its molecular mechanisms of action. *Oxid Med Cell Longev*. 2018;18:1–19.
- Shan Y. Medicinal honey in clinical practice: viable alternative or useful adjunct in wound care management? *Br J Nurs*. 2019;28:S23–S30.
- Aljabre SHM, Alakloby OM, Randhawa MA. Dermatological effects of *Nigella sativa*. *J Dermatol Dermatol Surg*. 2015;19:92–8.
- Gholamnezhad Z, Havakhah S, Boskabady MH. Preclinical and clinical effects of *Nigella sativa* and its constituent, thymoquinone: a review. *J Ethnopharmacol*. 2016;190:372–86.
- Ghorbanibirgani A, Khalili A, Rokhfarooz D. Comparing *Nigella sativa* oil and fish oil in treatment of vitiligo. *Iran Red Crescent Med J*. 2014;16:e4515.
- Talhaoui N, Taamalli A, Gómez-Caravaca AM, Fernández-Gutiérrez A, Segura-Carretero A. Phenolic compounds in olive leaves: analytical determination, biotic and abiotic influence, and health benefits. *Food Res Int*. 2015;77:92–108.
- Cui Z, Xin M, Yin H, Zhang J, Han F. Topical use of olive oil preparation to prevent radiodermatitis: results of a prospective study in nasopharyngeal carcinoma patients. *Int J Clin Exp Med*. 2015;8:11000–6.
- Feldstein S, Afshar M, Krakowski AC. Chemical burn from vinegar following an internet-based protocol for self-removal of nevi. *J Clin Aesthet Dermatol*. 2015;8:50.
- Parsad D, Pandhi R, Juneja A. Effectiveness of oral *Ginkgo biloba* in treating limited, slowly spreading vitiligo. *Clin Exp Dermatol*. 2003;28:285–7.
- Middelkamp-Hup MA, Bos JD, Rius-Diaz F, Gonzalez S, Westerhof W. Treatment of vitiligo vulgaris with narrow-band UVB and oral *Polypodium leucotomos* extract: a randomized double-blind placebo-controlled study. *J Eur Acad Dermatol Venereol*. 2007;21:942–50.