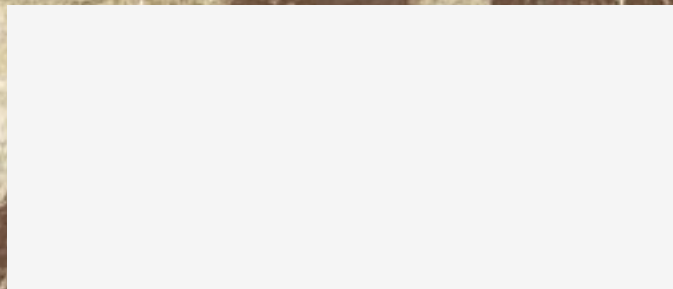




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"Kapalapa"

A cocky surfer who challenged Pele to surf on her lava.

HE MANA'O: THOUGHTS FROM THE EDITOR

HAWAI'I
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Maintaining Our Clinical Skills

In last month's issue, I highlighted the conferring of the Laureate Award of the American College of Physicians upon our former Dean of the University of Hawai'i John A. Burns School of Medicine, Ed Cadman. Medical school is perhaps the first common experience we have all had in our path toward healing others. In the early part of the past century, there was a national initiative led by Flexner and others to raise the standard of undergraduate medical education by accrediting the schools. Since that time, a rigorous process has evolved to ensure that the quality of the training received by our students will produce competent physicians. This accreditation occurs through the Liaison Committee on Medical Education, the LCME. Similarly, the specialty training programs of the country, both residencies and fellowships, are examined and certified by the Accreditation Council for Graduate Medical Education, the ACGME.



S. Kalani Brady MD, MPH, FACP
Editor, Hawai'i Medical Journal

However, we all recognize that apart from the loss of the knowledge we have acquired in the first seven to twelve years of our medical education, much of the knowledge we retain becomes obsolete with advances in medical science. Thus, in order to maintain our clinical competence, lifelong learning is a necessity. With the same goals of providing a structure of excellence as those entities above, the Accreditation Council for Continuing Medical Education (ACCME) has evolved over the past thirty years to provide a uniform set of essentials, standards, guidelines, and policies to which all accredited providers of CME in the country are held. The ACCME was created by seven parent organizations, including the American Medical Association, the Federation of State Medical Boards, the Association of American Medical Colleges, and the American Board of Medical Specialties. These organizations continue to guide the policies of the ACCME.

The ACCME reviews providers of CME through two complementary tracks. The first is by direct accreditation. This allows institutions with a predominantly national target audience to apply as sponsors. There are two providers in Hawai'i who

are accredited through this mechanism, the Queen's Medical Center and the Hawai'i Consortium for Continuing Medical Education (HCCME), a joint venture between the Hawai'i Medical Association (HMA) and the University of Hawai'i John A. Burns School of Medicine. The HCCME provides all Category 1 CME for the departments of the medical school and the HMA's annual scientific sessions, as well as providing staff to shepherd non-accredited joint sponsors through the challenging process of providing continuing medical education.

The ACCME's second mechanism for enabling institutions to provide CME is by recognizing the Hawai'i Medical Association as an accreditor of CME sponsors. This rigorous path allows the HMA to examine and grant provider status to entities with a physician target audience which is primarily from Hawai'i and its neighboring states and territories. The HMA performs this function through the Continuing Medical Education Facilities Accreditation Committee (CME FAC), which accredits approximately 20 specialty societies and hospitals in the Pacific, including those in Guam and American Samoa.

As with the LCME and the ACGME, the committees accrediting CME providers spend a great deal of time using standardized measures to analyze each institution's structure and processes, with the belief that if these are sound, then it is likely that the CME material will be of high quality. These provisions allowing us to maintain our clinical competence are yet another benefit of organized medicine. Whether you continue your education through journals, the internet, audio or videoteleconferences, grand rounds and hospital lectures, or large meetings, the provider has been examined and accredited by an entity of the ACCME through organized medicine.

A recent addition to the Journal is the table listing upcoming CME events. While not inclusive of all the offerings in Hawai'i in coming months, it is meant to inform the reader about key conferences in the future. In particular, I would like to highlight the 2006 Annual Meeting of the Hawai'i Medical Association at the Hawai'i Convention Center, October 20 through 22, celebrating the HMA's 150th Anniversary. This conference will showcase key speakers addressing some of the challenges in medicine as a field, including medical-legal issues, tort reform, proposals for a new system of health care financing, risk management, the electronic health record, pay for performance, and integrative medicine. This is an opportunity to increase your skills in your profession, interact with your colleagues in a meaningful way, and bring your families along for some fellowship. I hope to see you there! 🍹

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HAWAII BOARD OF MEDICAL EXAMINERS: PAIN MANAGEMENT POLICY

Section I: Introduction

The Board of Medical Examiners (“Board”) recognizes that principles of quality medical practice dictate that the people of the State of Hawaii have access to appropriate and effective pain relief. The Board affirms that controlled substances may be necessary to relieve pain, and the medical use of opioid analgesics is recognized to be part of legitimate medical practice.

The diagnosis and treatment of pain is integral to the practice of medicine. The Board encourages physicians to view pain management as a part of quality medical practice for all patients with pain, acute or chronic, and it is especially urgent for patients who experience pain as a result of terminal illness. The Board believes that all physicians who treat patients directly should have sufficient knowledge about pain and its management to provide comfort for those in pain, or utilize consultations when possible to obtain necessary information to make treatment decisions for their patients. Accordingly, this policy has been developed to clarify the Board’s position on pain management, particularly as related to the use of controlled substances.

The Board is obligated under the laws of the State of Hawaii to protect the public health and safety. The Board recognizes that the use of opioid analgesics for other than legitimate medical purposes poses a threat to the individual and society and that the inappropriate prescribing of controlled substances, including opioid analgesics, may lead to drug diversion and abuse by individuals who seek them for other than legitimate medical use. Accordingly, the Board expects that physicians incorporate safeguards into their practices to minimize the potential for the abuse and diversion of controlled substances. The Board considers acceptable the ordering, prescribing, dispensing or administration of controlled substances, including opioid analgesics, for a legitimate medical purpose to be acceptable particularly in the case of terminal illness. The Board considers the use of controlled substances for pain to be for a legitimate medical purpose if based on sound clinical judgment. To be within the usual course of professional practice, a physician-patient relationship must exist and the prescribing should be based on a diagnosis and documentation of unrelieved pain.

The Board will consider the inappropriate treatment of pain to be a departure from standards of practice and therefore investigate such allegations, recognizing that some types of pain cannot be completely relieved, and taking into account whether the treatment is appropriate to the diagnosis.

Section II: Evaluation of Physician Practice

The Board will judge the validity of the physician’s treatment of the patient based on available documentation, rather than solely on the

quantity and duration of medication administration. The goal is to control the patient’s pain while effectively addressing other aspects of the patient’s functioning, including physical, psychological, social and work-related factors.

Allegations of inappropriate pain management will be evaluated on a case-by-case basis. Deviation from this policy may be appropriate when contemporaneous medical records document reasonable cause for deviation.

In determining whether the physician has acted appropriately, the Board will consider the clinical outcome, whether drugs used are appropriate for the type of pain, and whether there is improvement in patient functioning and/or quality of life as factors.

Section III: Practice Guidelines for Chronic Pain Management

Evaluation of the Patient – A medical history and physical examination should be performed and documented in the medical record. The medical record should document the nature and intensity of the pain, current and past treatments for pain, underlying or coexisting diseases or conditions, the effect of the pain on physical and psychological function, and history of substance abuse or other compulsive behaviors.

Treatment Plan – The written treatment plan should state objectives that will be used to determine treatment success, such as pain relief and improved physical and psychosocial function, and should indicate if any further diagnostic evaluations or other treatments are planned. The treatment plan should be adjusted and documented according to the individual needs of each patient.

Informed Consent and Agreement for Treatment – The physician should discuss the risks and benefits of the use of controlled substances with the patient, persons designated by the patient or with the patient’s surrogate or guardian. The patient’s pain medication should be managed by one physician and one pharmacy whenever possible. If the patient is at high risk for medication abuse or has a history of substance abuse, the physician should have written treatment agreements outlining the patient’s responsibilities during treatment and should obtain informed consent before prescriptions are provided.

The treatment agreements may specify many of the following items:

- Urine or blood samples will be provided by patients upon request for urine/serum drugs of abuse screening and/or determining medication levels by their physicians;

- The number and frequency of all prescription refills may be limited at their physicians' discretion;
- Therapy with controlled substances may be discontinued by physicians under certain situations (e.g. significant violation of treatment agreements by patients);
- Physician/patient relationships may be discontinued under certain situations (e.g. violation of treatment agreements by patients);
- Medication refills will be provided under specified rules, within mutually agreed upon time-frames (e.g. early refills may not be allowed, lost medications may not be replaced, refills may only occur during regular business hours, etc.);
- All therapies may be provided on a time-limited basis to determine potential effectiveness, and may be discontinued if judged ineffective or unacceptably toxic;
- Referral of patients to substance abuse treatment programs will occur when use of controlled substances is determined to be due to underlying addiction and not pain.

Periodic Review - The physician should periodically review the course of pain treatment and any new information about the etiology of the pain or the patient's state of health. Continuation or modification of controlled substances for pain management therapy depends on the physician's evaluation of progress toward treatment objectives.

Use of consultation with pain management specialists, addiction medicine specialists, and other medical specialties is encouraged. Physicians should be willing to refer their patients as necessary for additional evaluations and therapies to achieve treatment objectives. Special attention should be given to those patients with pain who are at risk for medication misuse, abuse or diversion.

Medical Records – The physician should keep accurate, current and complete medical records. Elements considered for completeness may include, but are not limited to the following:

1. An initial medical history and physical examination;
2. Diagnostic imaging, therapeutic and laboratory results;
3. Ongoing evaluations and consultations;
4. Establishment of treatment objectives;
5. Discussion and documentation of risks, benefits and alternatives;
6. Results of treatment(s) provided (changes in pain intensity and character, interference with activities of daily living), and management of side effects;
7. Intended use of medications (information about date, name of medication, dosage, quantity prescribed with instructions);
8. Treatment instructions and agreements provided; and
9. Evidence of ongoing periodic review process with treatment modification if necessary.

Compliance With Controlled Substances Laws and Rules – To prescribe, dispense or administer controlled substances, the physician must be licensed in the state and comply with applicable federal and state laws and rules.

Section IV: Definitions (as taken from the Federation of State Medical Boards)

For the purpose of these guidelines, the following terms are defined as follows:

Pain - An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.

Acute Pain – Acute pain is the normal, predicted physiological response to a noxious chemical, thermal or mechanical stimulus and typically is associated with an invasive procedure, trauma or disease. It is generally time-limited.

Chronic Pain – Chronic pain is a state in which pain persists beyond the usual course of an acute disease or healing of an injury, or that may or may not be associated with an acute or chronic pathologic process that causes continuous or intermittent pain over months or years.

Addiction – Addiction is a primary, chronic, neurobiologic disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations. It is characterized by behaviors that include the following: impaired control over drug use, craving, compulsive use, and continued use despite harm. Physical dependence and tolerance are normal physiological consequences of extended opioid therapy for pain and are not the same as addiction.

Physical Dependence - Physical dependence is a state of adaptation that is manifested by drug class-specific signs and symptoms that can be produced by abrupt cessation, rapid dose reduction, decreasing blood level of the drug, and/or administration of an antagonist. Physical dependence, by itself, does not equate with addiction.

Tolerance - Tolerance is a physiological state resulting from regular use of a drug in which an increased dosage is needed to produce a specific effect, or a reduced effect is observed with a constant dose over time. Tolerance may or may not be evident during opioid treatment and does not equate with addiction.

Substance Abuse – Substance abuse is the use of any substance(s) for non-therapeutic purposes or use of medication for purposes other than those for which it is prescribed.

If you have any questions, please feel free to contact the Executive Officer, Constance Cabral, at 586-2708.

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Utility of the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) for Dementia in a Japanese-American Population

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Abstract

Ethnic diversity among older patients in Hawai'i is common; yet few data exist concerning the applicability of cognitive testing instruments in non-Caucasian populations. This project aimed to determine the specificity and sensitivity of the IQCODE for the detection of cognitive impairment in a Japanese-American population. Results confirm that the IQCODE is a valuable tool for primary care physicians to detect impairment in this population.

Introduction

Fifteen million people are diagnosed with dementia worldwide including 4 million individuals in the US alone.¹ The total cost of caring for a patient with the disease has been estimated to approach \$50,000 annually, with most costs paid for out of pocket.^{2,3} This conservative estimate understates the relative impact of illness particularly regarding quality of life for families and caregivers who are affected by the disease.⁴ As the population ages in the US, it will be of increasing importance to have a useful armamentarium of cognitive testing instruments to detect this disease.

Several dementia screening tests that are widely used include the Mini Mental State Exam (MMSE),⁵ Cognitive Abilities Screening Instrument (CASI),⁶ and Clock-Drawing Test.⁷ Despite these tools, there are significant barriers to timely diagnosis of dementia in clinical practice.^{8,9} Underlying reasons for a delay in diagnosis may relate to the inappropriate acceptance of dementia as a normal part of aging, time needed to complete screening, and inadequate physician education concerning treatment options.¹⁰ Since most screening tools evaluate current cognitive function rather than assess change over time, tools that investigate temporal change may be of particular value for screening.

One potential solution involves a greater utility of informant data in a structured interview. A close family member or friend is often aware of the patient's baseline cognitive and functional abilities and can compare past cognitive function to current levels. These infor-

mants are often used as informal sources of clinically important information. The Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) was originally designed to provide a structured measure of cognitive change with an informant's interview.¹¹ This instrument uses a 5 point scale (1=much better, 3=no change, 5=much worse) to compare current performance to that of up to 10 years prior on 26 common cognitive tasks including recognizing faces, recalling conversations, and completing simple tasks such as letter writing. The final score is an arithmetic average of the 26 items. A score of 3.0 indicates no change from previous performance and any score higher would represent an incremental decline. The original studies were validated in the outpatient setting and identified 3.6 as a cut-point with a reasonable balance of sensitivity and specificity for clinician diagnosis of dementia.¹¹⁻¹³ This instrument typically takes less than 5 minutes to complete and can be done with minimal direction from office staff, enhancing the ability to use it in the clinical practice setting.

One potential limitation of the IQCODE is that it may be influenced by the informant or the setting where it is applied. For example, limited research among Asian and Pacific Islanders suggest that cognitive concerns may not be disclosed due to concern for "loss of face" and shame for the family associated with a diagnosis of dementia.¹⁴ Furthermore, non-cognitive factors such as affective state of the informant and the quality of the relationship between informant and subject have been shown to influence the IQCODE.¹⁵ Consequently, we evaluate the sensitivity and specificity of the IQCODE for individuals living in Honolulu who self-identify as Japanese-American to assess the utility of the instrument as a screening tool in this particular population.

Methods

All patients 65 years of age or greater who were seen at an internal medicine group practice in Honolulu within a 6-week period in August and September of 1998

were telephoned and invited to participate in this study. Participants with a self-identified Japanese/Okinawan ethnicity were tested in either English or Japanese (participant choice) using the CASI, MMSE, and the Clock-Drawing Task. The CASI tests 9 domains of cognition and is utilized by the Honolulu-Asia Aging Study where 96% of participants scoring less than 74 were found to meet dementia criteria.¹⁶ Participants were categorized as having dementia if they met Benson and Cummings criteria as determined by the evaluating physician, based on interview data, cognitive testing, and an assessment of function. Severity of dementia was rated using the Clinical Dementia Rating (CDR) scale based on cognitive testing and functional status. For the purpose of this analysis, cognitive impairment was defined as a CASI score < 74 and a CDR>0 by physician determination. Further details of the selection and cognitive testing have been described elsewhere.⁸ All participants signed IRB-approved informed consents.

Informants were interviewed in person whenever possible or by telephone. The interview included the 26-item IQCODE, asking proxies to compare current patient performance to that of the maximum length of time they have known the participant or 10 years prior if they knew the participant for 10 or more years. Informants rated functional change from improvement to decline on the 5-point scale. A composite IQCODE score was determined for each subject by calculating the mean of all questions the proxy was able to answer. If the proxy was not able to comment on at least 21 of the 26 questions, the questionnaire was considered invalid.

Pearson coefficients for nonparametric variables were calculated. Sensitivity, specificity, and predictive values were calculated from 2X2 tables. The logits (log of the odds) obtained as parameter estimates in a univariate logistic regression equation of impairment on IQCODE score were transformed across a range of probability values to select the optimal cut-point for the IQCODE. The SAS statistical package version 9.1 was used for all analyses (SAS Institute, Inc, Cary NC).

Results

Within the 6-week enrollment period, 1,038 eligible patients were seen sequentially within the private-practice clinic. Sixty were excluded due to active involvement in the Honolulu-Asia Aging Study, wherein regular cognitive testing is performed; 46 were excluded due to lack of a contact telephone number. A total of 930 subjects were contacted by phone and 303 agreed to participate in the study (32.6%). Among the 303, four were excluded due to factors invalidating the cognitive testing in the opinion of the investigating physician. The population studied in this analysis included only participants who self-reported their ethnicity as Japanese/Okinawan [263 cases (88.0%)] and who had valid IQCODEs from proxy informants who also self-

identified as Japanese/Okinawan resulting in 230 cases (76% of the original sample).

The average age among participants in this analysis was 74.2 years (range: 65 - 96) and the average duration of formal education was 12.2 years (table 1). Most participants (66%) were female. Twenty-three (10%) met criteria for impairment and sixteen (7%) met our research criteria for dementia. The informants tended to be younger, had more years of formal education and tended to be relatives (47% spouses, 19% daughters, 14% were sons, and 10% sisters).

Within this study population, the IQCODE correlated well with other measures of cognition, accounting for 48.4% of the variance in CASI score ($p<0.001$) and 25.5% of the variance in score on the clock drawing task ($r=0.255$, $p<0.001$) as scored by Sunderland method using linear regression models.⁷ At higher cut-points, specificity is maximized while at lower cut-points sensitivity is maximized. To determine applicability of the IQCODE for impairment and dementia we created 2X2 tables using cut-points ranging from 3.2 to 3.7 and calculated sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) (table 2). Sensitivity for cognitive impairment dropped below 80% with a cut-point of 3.4 or higher while that for dementia occurred at a cut-point of 3.7 or higher. Having a IQCODE score of 3.5 or higher had reasonable specificity for impairment (92.2%).

To determine an overall indicator of the IQCODE's ability to classify participants as cognitively impaired, we created a receiver-operating characteristic (ROC) curve (Figure 1) and calculated the area under the ROC curve. The optimal cut-point is at the shoulder of the ROC curve where increases in sensitivity are offset least by reductions in specificity. The large area under the ROC curve (AUC = 0.87, maximum = 1) indicates that the IQCODE had the ability to correctly classify a high proportion and to misclassify a low proportion of our sample as cognitively impaired. The optimal cut-point for cognitive impairment is identified at 3.35 using the point near the intersection of the sensitivity and specificity curves in an overlay plot.

Discussion

The early diagnosis of dementia is essential to address possible reversible causes and begin prompt intervention, which may include medication.¹⁷ There is growing evidence that early intervention with dementia medications may optimize outcomes.^{18,19} Early diagnosis allows time for the patient and family to plan for the future and the physician to begin treatment and counseling to avoid secondary complications (e.g. depression, agitation, sleep disturbances, driving accidents, wandering, and psychosis) and to reduce caregiver burden.

Currently, detection of early disease is sub-optimal and may be improved with appropriate screening instruments that have good sensitivity. Instrument ap-

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This work was supported by the HMSA Foundation, Honolulu, HI; and the John A. Hartford Center of Excellence in Geriatric Medicine at the University of Hawai'i.

Table 1.— Baseline demographics of participants and informants.
* Informant age and education not provided for 4/230 cases (2%).

Variable	Patient (n=262)	Informant (n=257)*
Age mean, ± SD, y	74.2 ± 5.6	63.2 ± 13.8
Yr of schooling mean, ± SD, y	12.2 ± 3.1	13.9 ± 2.9
Gender (female)	66%	-
Japanese American	100%	100%
CASI Score, mean ± SD	84.2 ± 12.3	-
Cognitive Impairment, n	23 (10%)	-
Dementia, n (%)	16 (7%)	-

Table 2.— The sensitivity, specificity, positive predictive value, and negative predictive value of the IQCODE at various cut-points for cognitive impairment (CASI score <74 and a CDR>0) and dementia by Benson and Cummings criteria. All values are %

Cut-point	Impairment				Dementia			
	Sensitivity	Specificity	PPV	NPV	Sensitivity	Specificity	PPV	NPV
3.2	82.6	76.7	28.4	97.5	100	76.2	23.9	100
3.3	82.6	83.0	35.2	97.7	100	82.2	29.6	100
3.4	78.3	87.9	41.9	97.3	100	87.4	37.2	100
3.5	73.9	92.2	51.5	96.9	87.5	91.1	42.4	99.0
3.6	65.2	97.1	71.4	96.2	81.3	96.3	61.9	98.6
3.7	60.9	99.0	87.5	95.8	75.0	98.1	75.0	98.1

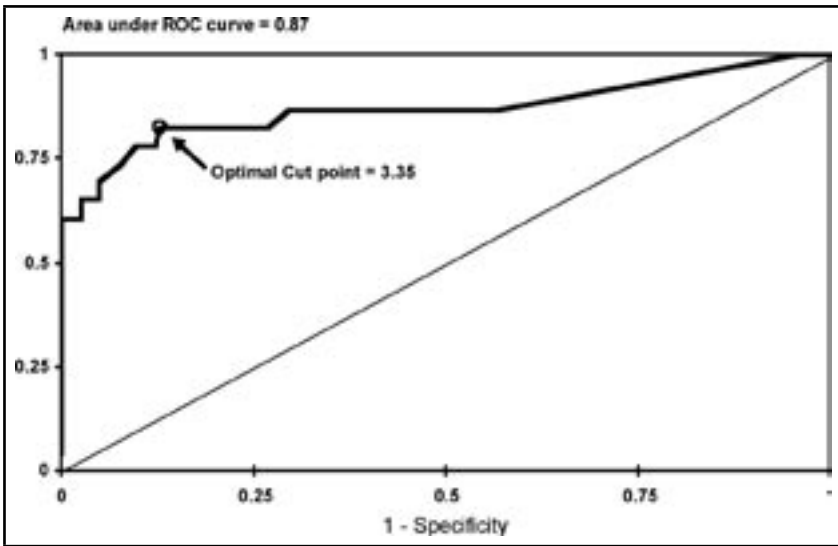


Figure 1.— ROC Curve for the Prediction of Cognitive Impairment by IQCODE

plicability may be driven, in part, by the characteristics of the setting and patients for which the tool will be applied. This is particularly important in the multi-cultural setting of Hawai'i and will become increasingly important nationally as ethnic diversity increases among aged cohorts. Our analysis provides good evidence that the IQCODE performs well in a Japanese-American population living in Honolulu and provides estimates of cut-points to maximize sensitivity in this setting.

One strength of the IQCODE is the capability to minimize confounding due to patient educational background and pre-morbid intelligence. It has also proven to be robust in various cultural settings. The IQCODE has been validated in Caucasians, and the Chinese, French, and Spanish versions have performed slightly better than the MMSE in detecting dementia in those populations.²⁰ Our data suggest that the cut-point to maximize utility of this instrument is slightly lower than that commonly used in clinical practice (3.6) as referenced in one of the early articles validating this instrument,¹² but consistent with more recent reports in varied patient populations. In a follow-up validation of the IQCODE by Jorms et al., for example, a cut-point of 3.27 provided a reasonable balance of sensitivity and specificity for the 26-item questionnaire.¹⁵ A similar study completed among a predominantly Chinese population yielded an optimal cut-point score of 3.4 for dementia, with high sensitivity (89%) and specificity (88%)²¹. While there is a theoretical basis for concern that cultural factors among Asian and Pacific Islander may influence reporting of cognitive decline,¹⁴ our results among a specific subpopulation of Hawai'i demonstrate a relatively similar cut-point for dementia screening with the IQCODE when compared to more contemporary cohorts.

Our analysis has several recognized limitations. Only willing patient volunteers were included in the study population. Due to the nature of the recruitment, little information is known about the individuals unwilling to participate. Most of these individuals reported being too busy to participate. It is possible that the group not participating included more individuals with moderate to severe dementia, which could have affected our ability to evaluate the sensitivity of this instrument. Our approach focused on a specific evaluation of individuals who self-identify as Japanese/Okinawan-Americans; however, we did not have a control group of non-Japanese/Okinawan-Americans and can therefore not confidently compare performance stratified by this variable. Instead, we are able to provide important validation data for a prevalent patient population in Hawai'i. Other factors that may influence the IQCODE, including non-cognitive factors of the informant and relationship difficulties between subject and informant, were not specifically evaluated. The investigators worked with only one private practice group clinic in Hawai'i, limiting the external validity of the findings

and further raising the possibility that other factors, exclusive of self-identified ethnicity, influenced the result. Working with a primary care clinic simultaneously increases the applicability of this study by identifying the utility of this screening test in common practice setting.

In conclusion, we present an evaluation of a simple cognitive screening tool applied specifically to a population that self-identified as Japanese/Okinawan in Honolulu. Drawing subjects from a primary care clinic, we validate the utility of the IQCODE in this setting and strengthen the cross-cultural utility for the IQCODE.


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Modeling Quality of Life in Cancer Patients as a Unidimensional Construct

Ian S. Pagano PhD and Carolyn C. Gotay PhD



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Abstract

Quality of life (QoL) in cancer patients has almost always been assessed as a multidimensional construct with subdomains including physical, emotional, social, cognitive, global, and specific symptoms. The assumed existence of multiple, and sometimes orthogonal, subdomains has prevented QoL from being defined consistently. Using an item response theory approach, this study examined the feasibility of modeling QoL as a unidimensional construct. The study sample consisted of 366 cancer patients who each responded to three QoL questionnaires: the EORTC QLQ-C30, the COOP/WONCA, and the HI-QOL. The items from these questionnaires were pooled and examined for the information each conveyed with respect to a unidimensional QoL construct. Twenty-two items were found to perform well, suggesting the possibility of modeling QoL as a unidimensional construct. Unidimensional QoL appears to be defined by items spanning the major subdomains: global, social, emotional, physical, role, fatigue, and the ability to engage in past activities. The cognitive subdomain did not fit the unidimensional measure.

Research involving the construct *quality of life* (QoL) has become more widespread in recent years, as medical researchers have shown increasing interest in the physical, psychological, and social health of individuals suffering from disease and treatment-related toxicity.^{1,2} The dominant model of multidimensional health status was first suggested by the charter of the World Health Organization, which defined health as “a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity” (WHO, 1946). In recent years, a number of instruments have been developed that define QoL functionally by patients’ own perceptions of their performance in various subdomains, such as physical, occupational, psychological, social, financial, and somatic (i.e., physical symptomatology) well-being.³⁻⁵ While it is often important to examine these individual subdomains, it is difficult to provide a measure of one’s global QoL when only subdomain data is available, and it is usually impossible to compare scores across different instruments.

An alternative approach is to assess QoL as a unidimensional construct. As a unidimensional measure, a global definition of QoL could be provided, eliminating the need to focus exclusively on specific subdomains. The problem of multiple, seemingly incompatible, instruments would be reduced, and it is likely that fewer

items would be needed for assessment. Therefore, the purpose of this study is to examine the feasibility of creating an instrument that would provide a unidimensional measure of quality of life.

The idea of assessing QoL unidimensionally may seem to imply that the various subdomains currently included in the QoL definition will need to be abandoned. However, this is not the case. In fact, in order for a unidimensional scale to have face validity, it is suggested that it will need to include items from most (if not all) of the major QoL subdomains. It is likely that the current QoL instruments are measuring several distinct, yet related, constructs; and the inclusion of these multiple constructs has clouded the assessment of QoL. What is needed is an instrument that measures only QoL, and not distinct constructs that are simply correlated with QoL.

These analyses are in an area of research that has shown an increased amount of QoL studies: cancer. The assessment of sequelae resulting from cancer therapies is an essential part of the cancer treatment process. One reason for this is that cancer treatments often involve therapies such as chemotherapy and radiation, which are highly toxic. Studies have shown that patients often experience fatigue,⁶ pain, sleep difficulties,⁷ depression,^{8,9} and sexual dysfunction,¹⁰ both during and after cancer treatment. Clearly, the impact that cancer has on QoL, both from the disease itself as well as its treatment, is significant. As a result, many prominent and important groups have expressed the need for QoL measures. Among these are international cancer institutes and societies,¹¹ clinical trial groups,¹² regulatory agencies,¹³ and the pharmaceutical industry.¹⁴

There was one QoL instrument, the Functional Living Index Cancer (FLIC),¹⁵ which was originally developed to generate a single overall quality of life score for cancer patients. However, several studies have shown it to have in fact a multidimensional structure.¹⁶⁻¹⁸ Another cancer instrument, the Hebrew Rehabilitation Centre for the Aged Quality of Life (HRCA-QL) Index,^{19,20} consists of five items and has been shown to be correlated with Karnofsky performance status (KPS) and the Independence in Activities of Daily Living (IADL) index. The scale has also been shown to have good internal consistency, test-retest reliability, and inter-rater reliability.²⁰ While research related to

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developing the HRCA-QL Index into a unidimensional scale has not been pursued, it does suggest that it might be possible.

A previous study by Gotay et al. (2002) also suggests the possibility of assessing a unidimensional QoL construct.²¹ In that study, a higher-order confirmatory factor analysis was conducted on a widely used QoL questionnaire, the EORTC QLQ-C30.^{3,22-24} Results provided evidence demonstrating the existence of a single higher-order factor, QoL, which influenced each of seven sub-domains (physical, role, emotional, cognitive, and social functioning; global health status; and physical symptomatology). However, because of the higher-order nature of the QoL construct in the study, it did not imply that the construct assessed by the QLQ-C30 was unidimensional. While the items were clearly all influenced by QoL, a multidimensional component was still apparent (as reflected by the lower-order factors).

Also using confirmatory factor analytic techniques, Keller et al. (1998) found that a single higher-order factor, which they termed health, influenced all of the items on the Short-Form Health Survey (SF-36).²⁵ Ferrans and Powers (1992) employed higher-order exploratory factor analysis methods on the Quality of Life Index (QLI), and found that a single higher-order factor influenced each of the lower-order dimensions.²⁶ While these studies do not directly demonstrate the existence of a unidimensional QoL construct (each indicates the presence of subdomains existing under a higher QoL factor), they do show that a single causal pathway might determine the subdomains of QoL.

The goal of the present study is to determine the feasibility of modeling quality of life as unidimensional construct in cancer patients. It is intended for this to be the first study in a series in which a scale that assesses QoL in cancer patients as a unidimensional construct is created and validated. In this initial study, formal scale development is not the objective. Because there is very little research examining unidimensional QoL, the purpose here is construct verification and definition, with an exploratory look at what might potentially be a unidimensional scale of QoL. The results of this study are intended to provide a foundation for the next steps in creating a formal scale.

In this process, a set of items that could potentially provide a unidimensional measure of QoL is sought. Failure to find such a set of items will suggest that it is not feasible to model QoL as a unidimensional construct. There are two important characteristics of the set of items which are focused upon. First, the set should perform well across varying levels of QoL (i.e., be reliable for both low and high levels of functioning). Second, the set should have face validity. Specifically, items that had been written to assess overall QoL should be included, as well as representative items from most or all of the major subdomains. Assuming a set of items can be found, subsequent studies will be necessary to further refine the items to be included on a unidimensional QoL instrument, and to establish aspects of validity, including incremental validity.

Method

Participants

The study sample consisted of 366 cancer patients, 56 percent of 646 eligible patients who were invited to participate. The most frequent reasons for nonparticipation were not feeling well enough to take part and being "not interested." Of the participants, 56 per-

cent were women, 70 percent were married, 40 percent had a high school education or less, and the mean age was 62 years (standard deviation = 12.7). Ethnic breakdowns were 36 percent Japanese, 34 percent Caucasian, 17 percent Filipino, 11 percent Hawaiian, and 2 percent unknown. The most common cancer site was the breast (34 percent), followed by the prostate (28 percent). Most patients had received surgical treatment (83 percent), with several receiving radiation (42 percent), chemotherapy (20 percent), or hormonal treatment (25 percent).

Participants were identified through registrations on the Hawai'i Tumor Registry (HTR), a member of the National Cancer Institute-supported Surveillance, Epidemiology, and End Results Registry, which maintains records for all cancers diagnosed in the state. Eligibility criteria were histologic confirmation of any kind of cancer diagnosed between four and six months previously; ability to understand English; permission of primary physician; Oahu residency; and 18 years of age or older. Participation was not limited by stage or site of disease, but not all cancer sites were represented (e.g., no patients had colorectal, head and neck, lung, or ovarian cancer).

Procedures

Permission to approach patients was obtained from their attending physicians before they were contacted. Patients received a letter introducing the study's intent, followed by a telephone call to set appointments. Most data were collected by interviews, most often at the patient's home. Interviews were conducted by one of four female research associates, all of whom had completed graduate work in social sciences as well as extensive training in interviewing cancer patients. Interviews took an average of one hour.

Measures

During the participant interviews the questions from three QoL instruments were asked. The first was the EORTC QLQ-C30 version 1.0.^{3,22-24} This questionnaire consists of 30 items, each written to assess aspects of QoL (see Appendix A). The items are grouped into five functional scales (physical, role, cognitive, emotional, and social), three symptom scales (pain, fatigue, and nausea), one global health status scale, five symptom items (dyspnoea, insomnia, appetite loss, constipation, and diarrhoea) and one financial difficulties item. Responses are either dichotomous (yes or no) for the physical and role scales, or Likert-type for the others.

The second instrument was the six-question Dartmouth Primary Care Cooperative Information Project (COOP) chart system adult version (WONCA)²⁷ (see Appendix B). Each chart (question) consists of a title, a question relating to the status of the patient during the past week, and five response choices. Each response choice consists of a number (from 1 to 5), a verbal description, and a graphic illustration indicating a level of functioning.^{28,29} Higher numbers represent more unfavorable levels of health.

The third instrument consisted of 29 items developed by Gotay et al. (2002) called the Hawai'i Quality of Life Questionnaire or HI-QOL²¹ (See Appendix C). The questions on the HI-QOL were written in an attempt to increase the content validity of QoL domains already included in the QLQ-C30, as well as to measure facets of QoL that were not included in either the QLQ-C30 or the COOP / WONCA. Each was written to potentially augment existing QoL instruments, and the questions were not created to serve as a stand-

alone instrument. The assessment areas included sexuality and intimacy, spiritual concerns, sense of humor, personal appearance, relationships with the standard health care team, social support, and accessibility of resources outside the health care system (e.g., alternative medicine). Questions were written in formats similar to either the QLQ-C30 (22 items) or the COOP/WONCA (7 items).

Data Analysis

An *item response theory* (IRT) approach was used to determine the appropriateness of modeling QoL as a unidimensional construct. If the available QoL data fit a standard IRT model (i.e., one that assumes a single underlying construct) reasonably well, it would suggest the possibility of modeling QoL as a unidimensional construct.³⁰ If not, it would suggest that the traditional approach of modeling multiple dimensions is necessary. In attempting to model QoL unidimensionally, it is not necessary for all of the available items to show good fit with respect to unidimensional QoL. In fact, an important advantage of defining QoL unidimensionally would be a reduced number of items needed for assessment. However, the reduced number of items would need to show face validity as a QoL measure.

It is expected that items written to assess global (or overall) functioning, as opposed to specific subdomains, will be among the best candidates for a unidimensional QoL measure. If these items do not fare well using the IRT modeling approach, it would suggest that the model is not assessing a construct that could be defined as unidimensional QoL. However, if these items were among the best fitting, it would imply that the model is indeed capturing a unidimensional QoL construct.

The majority of the available QoL items have been written to assess specific subdomains of QoL (e.g., physical functioning, pain, financial difficulties, etc.), and it is likely that some of these will show poor fit with respect to a unidimensional measure. But in order for a unidimensional measure to have face validity, it will be necessary for representative items from the major subdomains (as well as global items) to be present. If none shows good fit, this would be another result suggestive of the implausibility of a unidimensional measure. However, if a selection of items from the major subdomains (as well as the global functioning items) shows good fit, it would be suggestive of a valid unidimensional QoL instrument.

Because QoL has rarely been assessed as a unidimensional trait, it is difficult to formulate an a priori hypothesis as to which items will be the best candidates for creating a unidimensional measure (with the exception of the global functioning items). For this reason, items have been pooled from three QoL questionnaires, which assess a wide range of subdomains. This will help to determine subdomains that are potentially measures of unidimensional QoL. IRT modeling provides a method of determining which items, from a larger pool, are most appropriate for creating a measure for a unidimensional construct.

This method is one of the primary advantages of an IRT modeling approach over classical psychometric methods (commonly referred to as classical test theory, or simply CTT), and is termed *information*.³⁰⁻³⁴ Information refers to how well an item is assessing the underlying construct of interest. It is therefore the paramount concern when evaluating an item. If an item is not related to the construct it is supposed to measure, then it is of no use and must be discarded.

Procedurally, the term refers to the item information function (IIF) that is computed for each item under the IRT modeling procedure. It indicates how well an item discriminates between persons at varying levels of the underlying construct. It is directly related to the *slope* (also called *discrimination*) parameter in the IRT model. A plot of the IIF for an informative item will look similar to a normal distribution curve and will have a high peak at the *location*, the standardized value of the underlying construct, where the item is most informative (see Figure 1, Item 1). This location is sometimes called the *difficulty* parameter. Items that provide little information, in terms of the underlying construct that is assessed, will have IIF plots that are relatively flat with no clearly discernible peak (see Figure 1, Item 2). If a substantial and representative number of QoL items were shown to provide high levels of information, then these items could potentially be used to create a unidimensional QoL instrument.

Another advantage of IRT modeling over CTT modeling is *invariance*. When the assumption of unidimensionality is met, invariance states that the item parameters are independent of the sample's overall level on the underlying construct (often called the *ability level*), and person levels (on the construct, as determined by the model) are independent of the particular set of items responded to. IRT models have the invariance property because both item and person characteristics are estimated simultaneously within the model. Invariance ensures that results are not dependent on the overall ability level of the sample, and can therefore be generalized to people of any ability level.

Data from the three available instruments (QLQ-C30, COOP/WONCA, and HI-QOL) were analyzed simultaneously within a single IRT model. Because all of the participants responded to all three instruments, no additional steps were required for the linking of the three scales.³⁵ That is, the three instruments could be treated as a single measure of QoL. Items, for which it was necessary, were transposed so that all items had consistent scoring (i.e., higher numbers always indicated higher functioning). A two-parameter IRT model incorporating Samejima's Graded Response Model^{30,34,36,37} was used for the ordered Likert-type items that existed for each of the three instruments. The software used for the analyses was PARSCALE 4.1.³⁸

Items were assessed in two steps: first, for item *goodness-of-fit*, and second, for item information. Item fit was determined by a likelihood-ratio χ^2 statistic, where the null hypothesis is that there are no significant differences between the expected and observed frequencies of responses. A significant χ^2 indicates that the item parameters differ across raw score groupings and that the estimated item parameters are not appropriate for the data. Hence, a non-significant χ^2 is needed to show good item fit. Additionally, the fit for an instrument as a whole can be computed by summing the χ^2 values and degrees of freedom of the individual items, and determining the statistical significance of this summed χ^2 . For purposes of this study, items having a χ^2 value with $p < .10$ were considered to have poor fit and not recommended for a proposed unidimensional QoL measure, even if the items had high information.

After the assessment of item fit, items were examined for information. IIF plots were produced for each item and compared. Those that were relatively flat were considered non-informative with respect to unidimensional QoL. Test information functions (TIF) were also

computed for each of the three instruments. The TIF is calculated by summing the IIFs for all of the items within a specific instrument. It provides the same information as the IIF; but instead of for a single item, it is for an entire instrument. A plot of the TIF indicates how well an instrument is assessing the underlying construct at varying (standardized) ability levels. Values greater than 10 would correspond to reliability coefficients greater than .90.

Finally, the best fitting and most informative items from all of the instruments were pooled to create a proposed unidimensional QoL instrument. If this proposed instrument were to contain all of the global QoL items, as well as representative items from most or all of the major subscales, and if it showed TIF values greater than 10 across a wide range of (standardized) ability level, it would provide evidence to suggest that QoL could plausibly be modeled as a unidimensional construct.

Results

Results for the QLQ-C30 items are shown in Table 1 and the results for the COOP / WONCA and HI-QoL items are shown in Table 2. Both tables are equivalent with respect to the item results provided, and only differ with respect to the instruments involved. Items from the QLQ-C30 are labeled with the letter Q followed by the item number (e.g., Q1 is item 1 of the QLQ-C30). Similarly, for the COOP / WONCA and the HI-QoL, items are labeled with either the letter C or the letter H (e.g., H4 is item 4 on the HI-QoL). See the Appendices for the question wordings.

Of the 366 patients, 103 (28 percent) had at least one missing value for the 65 items on the three instruments. Out of the 23,790 possible responses (366 patients multiplied by 65 items), there were 185 missing values (0.8 percent of the total). Missing values were examined to assess if the data were missing at random. The patients were divided into two groups, those with missing values and those without, and compared on each of the items. None of the results suggested that there were problems with nonrandom missing data. The PARSCALE software employs the method of marginal maximum likelihood estimation incorporating the EM (Expectation Maximization) algorithm, which is appropriate when the data set is incomplete or has missing values.^{38;38:39}

The second column in both tables, *IIFmax*, indicates the maximum information value attained for each item. The third column, *slope*, is the value of the slope (or discrimination) parameter in the IRT model. Both *IIFmax* and *slope* indicate how well the item assesses the underlying unidimensional QoL construct. *Location* is the location (or difficulty) parameter in the IRT model, which is the standardized value of the underlying unidimensional construct for which the IIF reaches its maximum (this is the location for which the

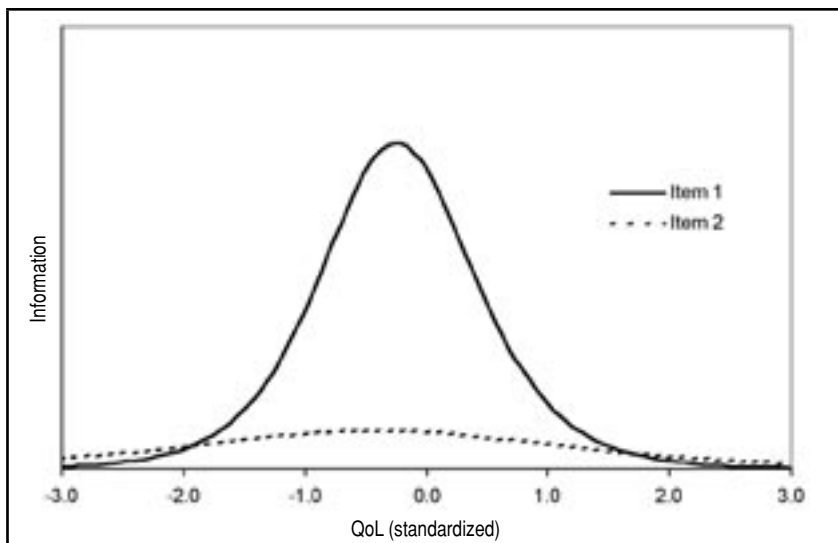


Figure 1.— Hypothetical Item Information Function (IIF) Plots.

Notes. Item 1 provides high information, and is most informative for persons with a unidimensional QoL level approximately 0.2 standard deviations below the mean. Item 2 provides low information and is not informative in the assessment of unidimensional QoL.

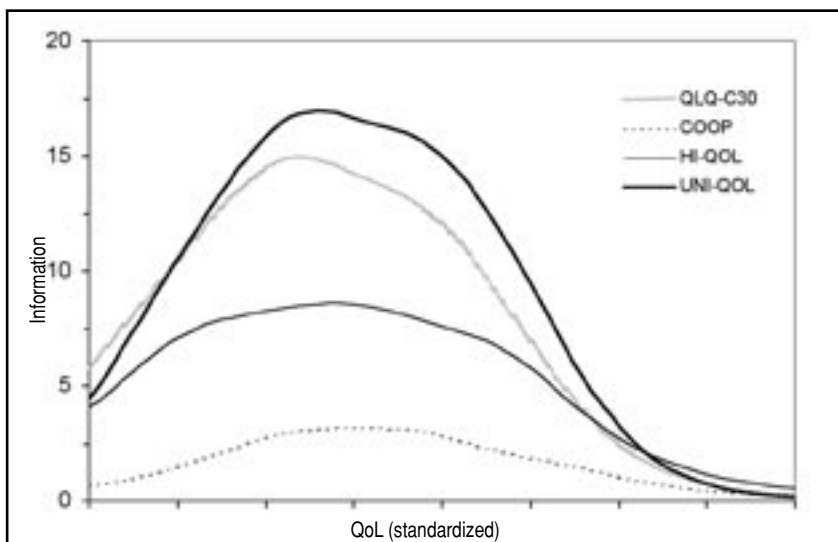


Figure 2.— Test Information Function (TIF) Plots.

Notes. UNI-QoL refers to the proposed unidimensional QoL measure consisting of 22 items. QLQ-C30 is the EORTC QLQ-C30 questionnaire, COOP is the COOP / WONCA, and HI-QoL are the items written by Gotay et al. (2002).

item is the most discriminative). The χ^2 column is the chi-square value obtained in the goodness-of-fit test; *df* is the degrees of freedom for the test; and *p* is the resulting probability value.

With the exception of items Q11, C5, H2, H10, and H19, all items exceeded the goodness-of-fit criterion ($p > .10$), which had been set a priori. Goodness-of-fit for each of the instruments as a whole was obtained by summing the χ^2 and *df* values. Both the QLQ-C30 and the HI-QoL showed good fit ($p = .96$ and $p = .49$, respectively), but the COOP/WONCA did not ($p = .04$). Values for *IIFmax* ranged from a low of .04 (H21) to a high of 1.38 (H22), indicating a wide range of

Table 1.— Item Results for the QLQ-C30.

ITEM	IIF _{MAX}	SLOPE	LOCATION	χ^2	df	p
Q1	0.22	0.56	-0.50	5.9	8	.67
Q2	0.37	0.72	-0.98	1.7	7	.97
Q3	0.60	0.91	-2.67	7.6	8	.47
Q4	0.37	0.72	-2.72	4.7	7	.70
Q5	0.16	0.54	-5.15	4.3	7	.74
Q6	0.41	0.75	-1.03	3.3	7	.86
Q7	0.54	0.87	-2.28	0.1	2	.96
Q8	0.43	0.73	-1.69	7.9	7	.35
Q9	0.28	0.60	-1.02	16.0	13	.25
Q10	0.66	0.94	-0.41	12.7	12	.39
Q11	0.20	0.49	-1.03	21.3	14	.09
Q12	1.35	1.36	-0.94	11.3	8	.18
Q13	0.89	1.03	-1.51	2.0	7	.96
Q14	0.44	0.73	-2.43	5.9	6	.44
Q15	0.51	0.80	-3.41	4.2	7	.76
Q16	0.20	0.49	-2.46	2.5	8	.96
Q17	0.21	0.51	-2.98	4.2	7	.75
Q18	0.59	0.90	-0.36	5.9	13	.95
Q19	0.80	1.02	-1.52	10.0	7	.19
Q20	0.52	0.79	-1.95	5.1	7	.65
Q21	0.53	0.84	-1.29	8.2	8	.41
Q22	0.50	0.81	-0.63	8.8	12	.72
Q23	0.63	0.91	-0.97	13.1	11	.28
Q24	0.82	1.04	-1.03	12.5	9	.19
Q25	0.12	0.40	-1.63	6.9	11	.81
Q26	0.57	0.83	-1.39	8.7	10	.56
Q27	1.00	1.10	-0.89	10.2	10	.42
Q28	0.28	0.57	-1.41	7.9	12	.79
Q29	1.07	1.12	-1.34	9.5	17	.92
Q30	1.33	1.24	-1.60	13.6	15	.56

Notes. The letter Q preceding the item numbers indicates that the items are from the QLQ-C30. Items included in the proposed unidimensional QoL measure are shown in **bold**. IIF_{max} is the maximum value of the item information function. Slope is the discrimination parameter. Location indicates the standardized level of QoL for which the IIF reaches its maximum. The remaining columns provide the goodness-of-fit results. Non-significance is needed to show good fit.

performance among the items. Eleven items had slope parameters greater than 1.0 (a criterion sometimes used for initial item assessment). The five items that had been written to assess global QoL (Q29, Q30, C6, H22, and H29) were all among these top eleven items. Also among the eleven best, were items related to social functioning (Q27 and C4), fatigue (Q12), emotional functioning (Q24), appetite loss (Q13), and pain (Q19).

An examination of IIF plots showed that at least another eleven items should be candidates for a unidimensional QoL measure. All had slope parameters greater than 0.8. These included items related to engaging in previous activities (C3, H7, and H12), physical functioning (Q3), role functioning (Q7), social functioning (Q26), emotional functioning (Q21, Q22, and Q23), and fatigue (Q10 and Q18). The 22 best performing items were pooled to form a newly proposed unidimensional QoL measure. For this paper, it will be referred to as UNI-QOL.

The UNI-QOL instrument showed high goodness-of-fit [$\chi^2(241) = 222.1, p = .80$]. A plot of the test information function (TIF) for the UNI-QOL compared to TIF plots for each of the three original instruments is shown in Figure 2. The UNI-QOL performed similarly to the QLQ-C30, with both having TIF values greater than 10 for a wide range of standardized QoL values.

Both the HI-QOL and the COOP did not perform well as unidimensional QoL measures (the TIF plots never reached the criterion value of 10). However, it should be again noted that the items in the HI-QOL were written to augment already existing QoL measures, and not to create a stand-alone instrument. The TIF for the UNI-QOL was greater than 10 for standardized QoL values ranging from -3.0 to +0.9. For the QLQ-C30, the range was from -3.0 to +0.4.

As a further test of the unidimensionality of the UNI-QOL, an exploratory factor analysis was run using the Factor procedure in the SAS software package. The first four eigenvalues from this analysis were 18.4, 2.7, 2.3, and 1.3. The ratio of the first eigenvalue to the second is 6.8, indicating strong unidimensionality. An examination of the residuals showed that, after controlling for the unidimensional construct, no pair of items had more than 10 percent of their variance in common, and 96 percent of pairs had less than 4 percent of their variance in common.

Discussion

The results supported the hypothesis that quality of life could be measured as a unidimensional construct. From the 65 items pooled from the QLQ-C30, COOP / WONCA, and HI-QOL questionnaires, at least 22 were candidates to be included in a unidimensional measure. These 22 items included all five items that had been written to assess global QoL, as well as items that included major subdomains of QoL: social functioning (three items), emotional functioning (four items), fatigue (three items), physical functioning (one item), and role functioning (one item). Another subdomain that emerged was related to being able to engage in previous activities (three items). Items related to appetite loss and pain were also included. This suggests that the 22 best performing items provide face validity in terms of being measures of unidimensional QoL.

One subdomain that was not represented in the 22 best performing items was cognitive functioning. This subdomain also showed the poorest relation to QoL in the Gotay et al. (2002) higher-order confirmatory factory analysis with the QLQ-C30. Both of these results suggest that cognitive functioning might not be essential as a measure of unidimensional QoL. This does not suggest that it is not important. There may be aspects of individual well-being that do not fall under the QoL heading, as has been defined here. The existence of constructs orthogonal to unidimensional QoL, which nonetheless contribute to happiness or enjoyment of life, is almost assured. For example, unidimensional QoL might be a measure of aspects essential to well-being. But other aspects could exist that have the potential to improve well-being, but are not required. Future research in this area may offer a better understanding of human happiness.

Physical functioning and role functioning each had

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only one item with high performance. One explanation for the small number of high performing items has to do with the possible responses to the questions. On the QLQ-C30, these questions allowed only for a dichotomous (yes or no) response, whereas all other items incorporated Likert-type responses. This might have had a detrimental impact on the amount of information these items could provide. It is noteworthy that after the data had already been collected for this study, the QLQ-C30 was revised so that these items are now on a Likert-type scale the same as the others. Future research needs to examine the performance of these revised items.

Based on the results of this study, the subdomains of QoL that appear most strongly to define the construct unidimensionally are social functioning, emotional functioning, fatigue, and the ability to engage in past activities (and of course global functioning). This last subdomain (activities) is not included as a specific subdomain of the QLQ-C30, but two items (on the QLQ-C30) related to it showed high performance. The first is a pain item, Q19, which differs from the other pain related questions (Q9 and H24) in that it is not a general question assessing how much pain a person had. It asks how much pain interfered with activities. The second is loss of appetite, Q13, which also reflects an inability to enjoy a previous activity, eating. This suggests that the ability to engage in past activities is an important aspect of unidimensional QoL.

It is recommended that development of a unidimensional measure of QoL be pursued. While this study suggests the possibility that QoL can be modeled as a unidimensional construct, more research would need to be done before the proposed UNI-QOL questionnaire, or one similar, could be used in practice. The 22 UNI-QOL items have been shown here to be good candidates for a unidimensional QoL measure, and these could serve as a starting point for future validity studies.

It should be noted that the QLQ-C30 showed similar performance to the UNI-QOL in terms of assessing QoL as a unidimensional construct (see Figure 2). This suggests that the most informative of the QLQ-C30 items could potentially represent a valid unidimensional QoL measure. If so, extensive validity studies would be less important because the QLQ-C30 has already undergone many validity analyses.

Another result from this study is that the location parameters for the majority of items were low. This implies that the sample in the present study appeared to have generally high levels of QoL. All of the instruments were most informative for QoL levels that were substantially below the mean QoL level of this sample. This suggests that if assessments of high functioning individuals are desired, then new, more “difficult” (i.e., discriminative among high functioning people) questions need to be written.

Probably the greatest strength of this study is the use of the IRT modeling technique, which allowed

ITEM	IIF _{MAX}	SLOPE	LOCATION	χ^2	df	p
C1	0.08	0.31	+ 0.34	17.3	21	.69
C2	0.16	0.43	+ 0.46	19.9	19	.40
C3	0.72	0.92	- 1.35	7.2	12	.84
C4	1.16	1.15	- 1.13	15.0	12	.24
C5	0.09	0.33	- 2.68	48.0	15	.00
C6	0.94	1.08	- 0.15	12.2	16	.73
H1	0.45	0.76	- 1.62	8.7	8	.36
H2	0.10	0.35	+ 2.08	22.3	14	.07
H3	0.19	0.49	- 1.65	14.4	11	.21
H4	0.18	0.46	- 0.54	17.3	15	.30
H5	0.26	0.57	- 0.68	10.2	14	.75
H6	0.05	0.24	- 2.11	9.5	15	.85
H7	0.52	0.80	- 0.82	10.6	12	.56
H8	0.18	0.46	- 1.34	12.9	13	.45
H9	0.37	0.69	- 1.32	6.0	10	.82
H10	0.25	0.54	- 1.68	21.4	12	.05
H11	0.35	0.65	- 1.30	12.4	12	.42
H12	0.66	0.89	- 0.50	11.8	13	.55
H13	0.14	0.41	- 0.78	16.5	14	.28
H14	0.21	0.50	- 1.39	13.8	13	.39
H15	0.13	0.39	- 2.53	11.5	12	.49
H16	0.10	0.34	- 2.03	13.9	13	.38
H17	0.18	0.46	- 3.22	10.9	7	.14
H18	0.06	0.26	- 2.47	9.4	14	.81
H19	0.25	0.55	- 2.32	12.2	7	.09
H20	0.16	0.43	- 1.38	15.2	13	.29
H21	0.04	0.22	- 0.14	14.1	16	.59
H22	1.38	1.25	- 1.25	17.2	15	.31
H23	0.51	0.80	- 0.62	7.2	14	.93
H24	0.27	0.55	- 1.10	21.0	16	.18
H25	0.25	0.53	- 1.35	5.5	15	.99
H26	0.28	0.56	- 2.45	4.2	12	.98
H27	0.20	0.47	- 3.66	9.9	8	.28
H28	0.26	0.54	- 3.14	4.1	8	.85
H29	0.91	1.09	- 1.08	13.9	12	.31

Notes. The letters C or H preceding the item numbers indicate that the items are from either the COOP / WONCA (C) or the HI-QOL (H). Items included in the proposed unidimensional QoL measure are shown in bold. IIF_{max} is the maximum value of the item information function. Slope is the discrimination parameter. Location indicates the standardized level of QoL for which the IIF reaches its maximum. The remaining columns provide the goodness-of-fit results. Non-significance is needed to show good fit.

for assessment of item information and was not impaired by the characteristics of the given sample in the way that CTT methods are. This has allowed for an item-by-item analysis of the best candidates for a unidimensional QoL measure. Another strength is the inclusion of three QoL instruments that were answered by all of the participants. This allowed for direct comparison across each, and provided a larger item pool to examine.

A limitation of this study is that all of the participants resided in a single location. QoL measures have been written to be applicable to virtually everyone in the world, and validation studies also need to be a representative as possible. Hawai'i has a more diverse ethnic make-up than any other state, helping somewhat to increase generalizability.

In conclusion, the evidence presented here suggests that quality of life in cancer patients can be measured as a unidimensional construct. Items from what were previously thought to be separate subdomains of QoL might in fact be direct measures of a global QoL construct. Hence, the assumption that QoL is a necessarily multidimensional construct might be false, and greater future application of techniques such as IRT hold considerable promise.

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APPENDIX A: QLQ-C30 Questions

	SUBSCALE
1. Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?	Physical
2. Do you have any trouble taking a long walk?	Physical
3. Do you have any trouble take a short walk outside of the house?	Physical
4. Do have to stay in bed or a chair for most of the day?	Physical
5. Do you need help with eating, dressing, washing yourself or using the toilet?	Physical
6. Are you limited in any way in doing either your work or doing household jobs?	Role
7. Are you completely unable to work at a job or to do household jobs?	Role
During the past week:	
8. Were you short of breath?	Dyspnea
9. Have you had pain?	Pain
10. Did you need rest?	Fatigue
11. Have you had trouble sleeping?	Insomnia
12. Have you felt weak?	Fatigue
13. Have you lacked appetite?	Appetite Loss
14. Have you felt nauseated?	Nausea
15. Have you vomited?	Nausea
16. Have you been constipated?	Constipation
17. Have you had diarrhea?	Diarrhea
18. Were you tired?	Fatigue
19. Did pain interfere with your daily activities?	Pain
20. Have you had difficulty in concentrating on things, like reading a newspaper or watching television?	Cognitive
21. Did you feel tense?	Emotional
22. Did you worry?	Emotional
23. Did you feel irritable?	Emotional
24. Did you feel depressed?	Emotional
25. Have you had difficulty remembering things?	Cognitive
26. Has your physical condition or medical treatment interfered with your family life?	Social
27. Has your physical condition or medical treatment interfered with your social activities?	Social
28. Has your physical condition or medical treatment caused you financial difficulties?	Financial
29. How would you rate your overall physical condition?	Global
30. How would you rate your overall quality of life?	Global

Notes. For items 1-7, a response of either “Yes” or “No” is possible. For items 8-28, four Likert-type responses are possible. A response of 1 reflects “Not at all,” 2 “A little,” 3 “Quite a bit,” and 4 “Very Much.” For items 29-30, seven Likert-type responses are possible, where 1 reflects “Very Poor” and 7 reflects “Excellent.” The Subscale column indicates the subscales as specified in the QLQ-C30.

APPENDIX B: COOP/WONCA Questions

During the past week:	SUBSCALE
1. What was the hardest physical activity you would be able to do for at least 2 minutes?	Physical Fitness
2. How much have you been bothered by emotional problems such as feeling anxious, depressed, irritable or downhearted and sad?	Feelings
3. How much difficulty have you had doing your usual activities or tasks?	Daily Activities
4. Has your physical or emotional health limited your usual activities with family, friends, or others?	Social Activities
5. How would you rate your overall health now, compared to last month?	Change in Health
6. How would you rate your health in general?	Overall Health

Notes. For every question, five Likert-type responses are possible. A response of 1 reflects the highest level of functioning, and 5 the lowest. There is a verbal description as well as a graphic illustration for each possible response, and these are unique to each question. The Subscale column indicates the subscales as specified in the COOP / WONCA.


APPENDIX C: HI-QOL Questions


During the past week:

	SUBSCALE
1. Did concentration or memory problems irritate or upset you?	Cognitive
2. Could you forget about your illness?	Coping
3. Did you feel frightened?	Emotional
4. Were you satisfied with how you could cope?	Coping
5. Did you worry about whether your illness might be progressing?	Emotional
6. Was someone there to help you when you needed it?	Support
7. Were you upset or irritated because your physical condition interfered with your activities?	Social
8. Could you keep a positive attitude?	Coping
9. Did you feel angry?	Emotional
10. Could you enjoy funny situations or jokes?	Coping
11. Were you upset with changes in your personal appearance?	Emotional
12. Could you enjoy your usual past-times?	Social
13. Did your illness or medical treatment interfere with your sex life?	Intimacy
14. Did your illness or medical treatment have a negative effect on your sense of intimacy?	Intimacy
15. Was your family a source of support for you?	Support
16. Could you express your feelings as you wished?	Existential
17. Did you have confidence in your medical team?	Existential
18. Was a close friend a good source of support for you?	Existential
19. Were you satisfied with your part in making decisions about your health and treatment?	Existential
20. Did you feel a sense of inner well-being, peace, or faith?	Existential
21. Did you feel that you gained any insight or new perspective on life that is helpful to you in some way?	Existential
22. How would you rate your overall sense of well-being?	Global
23. How happy have you been?	Emotional
24. How much bodily pain have you had?	Pain
25. Has your physical or mental health had a negative effect on your intimate relationship?	Intimacy
26. Did you have enough help or support when you needed it?	Support
27. How would you rate your relationship with your medical team?	Support
28. How supportive has your family been for you?	Support
29. How have things been going for you?	Global

Notes. For items 1-21, four Likert-type responses are possible. A response of 1 reflects “Not at all,” 2 “A little,” 3 “Quite a bit,” and 4 “Very Much.” For item 22, seven Likert-type responses are possible, where 1 reflects “Very Poor” and 7 reflects “Excellent.” For items 23-29, five Likert-type responses are possible. A response of 1 reflects the highest level of functioning, and 5 the lowest. There is a verbal description as well as a graphic illustration for each possible response, and these are unique to each question. The Subscale column indicates the subscales as specified in Gotay et al. (2002).

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Tachycardia-induced elevations in cardiac troponin in the absence of coronary artery disease

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Abstract

Elevations in serum cardiac troponins are used to diagnose myocardial infarction caused by ischemic heart disease. Several other conditions result in elevated cardiac makers in the absence of significant coronary artery disease. While not commonly recognized elevations of troponin I (TNI) may be seen in patients with protracted arrhythmias. We describe three patients with prolonged tachycardia, heart rates of 200-260 beats per minute, who had elevated TNI (0.81-4.6 ng/ml) but no significant coronary artery disease. Two patients presented with ventricular tachycardia and one had an atrioventricular re-entrant tachycardia. None of the patients presented with symptomatic hypotension. Coronary angiography in all three patients did not demonstrate significant coronary artery disease. The finding of an elevated TNI level may be the result of tachycardia and not myocardial infarction related to ischemic heart disease.

Introduction

The clinical diagnosis of acute myocardial infarction is based upon symptomatic presentation, evolving electrocardiographic changes and chemical evidence of myocardial injury. The finding of an elevated serum cardiac troponin level is felt to be diagnostic of myocardial injury and is therefore indicative of acute myocardial infarction caused by ischemic heart disease.¹ A variety of conditions are associated with elevated serum cardiac troponin levels but no significant coronary artery disease. These conditions include sepsis, renal failure, hypotension, myocarditis, pericarditis, pulmonary embolism, cardiac contusion and congestive heart failure.²⁻¹⁰ Cardiac arrhythmias including supraventricular tachycardias have been described to be a possible cause of elevations of cardiac injury markers in the absence of significant coronary disease.^{2,3,11} However tachycardia-induced elevations of cardiac troponin levels remains underdiagnosed. We describe three patients in whom serial increases and decreases in cardiac troponin markers were associated with a protracted arrhythmia. None of the three patients had angiographically documented coronary disease. We suggest that careful clinical correlation is needed to separate myocardial infarction related to coronary artery disease from tachycardia induced elevations of cardiac markers without underlying ischemic heart disease.

Case Presentations

Patient 1

A 22 year old male with ventricular pre-excitation presented with a history of protracted palpitations of three to four days in duration. His initial electrocardiogram demonstrated a wide complex tachycardia consistent with an antedromic atrioventricular reciprocating tachycardia at a heart rate of 257 beats per minute. The patient's blood pressure during tachycardia was 117/78mm Hg. The tachycardia was terminated with intravenous adenosine. At time of presentation the patient noted dyspnea but denied symptoms of chest discomfort. Serial assessments of cardiac injury markers documented an increase in troponin I from 1.6 to 2.8ng/ml (normal <0.10 ng/ml). Concordant elevations in creatinine kinase MB (CK-MB) fractions were noted with a total CK at time of presentation of 736 IU/L (normal 35-232IU/L) and a CK-MB of 24.6ng/ml (normal < 5.0ng/ml). The patient underwent coronary angiography and was found to have normal coronary anatomy. Left ventricular angiography demonstrated normal left ventricular systolic function without regional wall motion abnormalities. Left ventricular ejection fraction was 0.63. The patient underwent electrophysiological evaluation and was found to have an inducible antedromic atrioventricular reciprocating tachycardia using a left sided accessory bypass tract for antegrade conduction and the atrioventricular node for retrograde conduction. Radiofrequency ablation of the bypass tract was performed. In 10 months of follow-up, the patient has not had cardiac symptoms or a cardiac ischemic event.

Patient 2

A 58 year old male with hypertension and chronic kidney disease presented with sustained ventricular tachycardia of four hours duration. The morphology of the ventricular tachycardia was of left bundle branch block and inferior axis consistent with a right ventricular outflow tract origin. The patient denied symptoms of angina or dyspnea. His presenting blood pressure was 120/96. The patient was treated with intravenous amiodarone with conversion of tachycardia. Serial cardiac

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injury markers revealed an elevation of troponin I at 0.51ng/ml with sequential assessments peaking at 0.82ng/ml. Assessments of creatinine kinase demonstrated normal total CK levels but elevations of CK-MB levels. The patient's initial CK-MB measurement was 6.3ng/ml; the peak level was 7.7ng/ml measured sequentially over a 24 hour period. Electrocardiograms did not demonstrate ischemic changes. The patient underwent coronary angiography and was not found to have significant ischemic heart disease or clear evidence of plaque rupture. An echocardiogram was obtained documenting normal left ventricular function with a left ventricular ejection fraction of 0.55. The patient was diagnosed to have an idiopathic right ventricular outflow tract tachycardia and maintained on oral amiodarone. During 12 months of follow-up the patient has done well without cardiac symptoms or documented ischemic events.

Patient 3

A 45 year old male with a history of a nonischemic cardiomyopathy, ventricular tachycardia and reactive airway disease presented with sustained ventricular tachycardia of approximately 25 minutes duration. On arrival of the emergency response team, the patient was found to be in ventricular tachycardia at a heart rate of 200 beats per minute. He was asymptomatic with a palpated systolic blood pressure of 100 mm Hg. The patient was treated with intravenous lidocaine with termination of ventricular tachycardia. Serial assessments of cardiac injury markers revealed an increase in troponin I from <0.3 ng/ml to 4.6 ng/ml. A mild elevation of serum creatinine kinase was noted with a total CK of 234IU/L; CK-MB fractions were normal at 2.7ng/ml. Electrocardiograms documented nonspecific ST changes but no evolving Q waves. Coronary angiography was performed and did not demonstrate significant coronary artery disease. Left ventricular angiography revealed generalized hypokinesis with posterobasal akinesis and a left ventricular ejection fraction of 0.35. Comparisons between these studies and cardiac catheterization performed 13 years earlier demonstrated identical wall motion abnormalities but declining left ventricular systolic function. The patient was treated with Sotalol and an implantable defibrillator was placed. During 8 months of follow-up, the patient has not had a cardiac ischemic event.

Discussion

Elevated measurements of serum cardiac troponins are the clinical standard for the detection of myocardial injury.¹ However, the ubiquitous use of measurements of cardiac markers in the setting of suspected myocardial infarction has resulted in clinical confusion when elevations of cardiac injury markers are noted but the patient's presentation does not suggest acute myocardial infarction. Elevated cardiac troponins have been documented in a variety of clinical scenarios not associated with significant coronary artery disease including sepsis, congestive heart failure, renal failure, pericarditis and pulmonary embolism.²⁻¹¹ Jaffe cautioned that the diagnosis of acute myocardial infarction in the setting of elevated cardiac markers requires careful correlation between clinical presentation and interpretations of abnormal laboratory values.¹² If elevations of cardiac markers are noted but an ischemic event appeared unlikely, other causes of elevations of cardiac markers beside acute myocardial infarction should be considered. One of the causes of elevations of serum cardiac troponin levels without significant


coronary artery disease and associated myocardial infarction is protracted tachycardia.

Our case series provides evidence that protracted tachycardia without significant coronary disease can lead to elevated measurements of cardiac troponins. The mechanism by which tachycardia could lead to elevated troponins remain unclear. We suspect that tachycardia results in a supply-demand discrepancy and hence leads to relative ischemia and myocyte injury. This discrepancy may result from an increased demand for myocardial oxygen, reduced myocardial oxygen supply due to shortening of diastole, impaired coronary flow and elevated diastolic filling pressures. Myocyte injury may be caused by protracted tachycardia even in the absence of coronary artery disease. Clinicians should be aware that tachycardia can result in elevations of serum cardiac markers. We advise that the diagnosis of myocardial infarction should not be based upon the isolated finding of elevated cardiac markers; blind interpretations of abnormal laboratory tests should not substitute good clinical judgment.

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Echinacea for the Common Cold: Exploring the Rational of Scientific Research on Complementary and Alternative Medical Therapies

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With cold and flu season in full effect, many of us are encountering the seasonal onslaught of patients with upper respiratory illness. Nationally, approximately 25 million people visit health providers with uncomplicated upper respiratory infections resulting in over 20 million days of absence from school and work.¹ As a consequence, there is great interest in treatments which may prevent or ameliorate the symptoms of the common cold.

Echinacea, a plant indigenous to the midwestern United States, has emerged as a popular herbal remedy for the common cold. Despite Echinacea's long history and current popularity as a cold remedy, the scientific evidence of its efficacy, like many complementary and alternative therapies, is still widely debated.³

A study by Turner and colleagues in the July 28, 2005 issue of the *New England Journal of Medicine* (NEJM) continues the debate.³

In the study, 437 healthy adult volunteers were randomly assigned to receive one of three preparations of *Echinacea angustifolia* or a placebo. *E. angustifolia* was chosen as it had shown benefit in treatment of the common cold in prior studies,^{4,5} and is one of the species endorsed by the World Health Organization for treating the common cold.⁶ The participants received various combinations of Echinacea and/or a placebo in two phases: a "prophylaxis" (preventative) phase and a treatment phase. The prophylaxis phase lasted 7 days. On the seventh day, the already treated participants were exposed to a nasal spray containing a virus that induces signs and symptoms of a cold in about 2 days. Participants were then isolated for 5 days while the research team observed and tested them, using qualitative and quantitative measurements to detect the appearance and severity of cold signs and symptoms.

The researchers found that none of the preparations of *E. angustifolia* at a 900 mg per day study dose had significant effects on whether volunteers became infected with the cold virus or on the severity or duration of symptoms among those who developed colds. Turner and colleagues correctly stated their work would not end discussion about the efficacy of Echinacea. In fact, (National Center for Complementary and Alternative Medicine) NCCAM reports it will continue to support research on Echinacea and is currently funding a number of preclinical, Phase I and Phase II studies of Echinacea products.

While an analysis of scientific merits of the Turner study, comparing it to other randomized, double blind, placebo controlled trials of Echinacea, such as that conducted by Barrett and colleagues,⁷ is an interesting endeavor, the question of whether these types of studies should be undertaken in the first place has been a topic of heated discussion. Research on botanicals and other natural products, the

currency of complementary and alternative medicine, presents a number of challenges related to product characterization, standardization, and dosage. An obstacle to undertaking definitive studies on such therapies is the fact that different medicinal preparations of herbs have different properties.⁸ In addition to the selection of the plant species, the composition of the final medicinal product may be impacted by the part of the plant used, the method of extraction, and even the environment and season in which the plant was harvested. Given the many variables, it may be difficult to reproduce the material used in a particular study, even when this information is provided.⁸

Dr. Wallace Sampson, a retired oncologist and editor of the *Scientific Review of Alternative Medicine*, questions the relevance, "plausibility" and fiscal responsibility of not only the Turner study, but the mission and existence of NCCAM itself.⁹ Dr. Sampson poses the question, "Why are we doing randomized clinical trials of folkway uses of herbs and sectarian remedies?"⁹ For its part, NCCAM continues its mandate to explore complementary and alternative healing practices in the context of rigorous science, training complementary and alternative medicine researchers, and disseminating authoritative information to the public and professionals.

Despite these difficulties, the evaluation of Echinacea, like other botanical remedies in the pantheon of complementary and alternative medicine, remains a valid subject for clinical investigation. Using Echinacea as an exemplar, one can reasonably argue that the rational evaluation of a treatment, which may prevent complications of a common disease that has a significant impact on the wellness and productivity of our entire populous, has merit. It is difficult to ignore the widespread use of Echinacea (and countless other herbal and botanical remedies) and the persistence of anecdotal reports of its efficacy. As efforts continue to evaluate Echinacea and other remedies, future studies must incorporate careful characterization of the study material and an assessment of the pathophysiologic processes associated with the disease process under investigation. Although characterized as "complementary and alternative" medicine, the rational, scientific study of Echinacea and other natural remedies is necessary in ensuring that the safety and efficacy of these therapies are known by both the medical community and the public at large. Until the government sets labeling standards and requires herbal manufacturers to meet them, consumers will continue to be part of the current haphazard marketplace experiment. Since the manufacturers of echinacea can already claim almost any

See *Echinacea* p. 93



Health Disparities Research with Hispanics/Latinos

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In the United States, national data indicates that Latinos comprise approximately 35.3 million or 12.5 percent of the population¹ making Latinos the largest and fastest growing ethnic minority group in the U.S.² It is estimated that by the year 2050, Latinos will comprise more than 25 percent of the United States population.³ According to the 2000 U.S. Census, Latinos comprise approximately 7.2 percent (n= 87,699) of the total population⁴ in Hawai'i. The current 2004 U.S. Census estimates that this number has increased to 96,778 Latinos, or 7.9 percent of the population.⁵ The largest Latino ethnic groups in Hawai'i are Puerto Ricans (34.2 percent, n= 30,005) and Mexicans (22.6 percent, n=19,820), and Latinos from nearly every Latin American country are represented in Hawai'i.⁴ The increasing numbers of Latinos in the U.S. and Hawai'i make it imperative to assess and address the health issues associated with this growing segment of the population. This article focuses on cancer health disparities and risk factors for Latinos; community partnerships that have been developed to address these disparities; and research studies that are being conducted to reduce cancer risk factors among Latinos in Hawai'i.

Health Disparities and Risk Factors in Latinos

Among Latino adults, the leading causes of death are heart disease (24 percent), cancer (20 percent), cerebrovascular disease (6 percent), and diabetes (5 percent).⁶ In terms of cancer, Latino women have the highest incidence and mortality for breast cancer, followed by lung and bronchus cancer,⁷ while Latino men have the highest incidence and mortality rates for prostate cancer, followed by lung and bronchus cancer.⁷ In general, the risk for cancers among Latinos differ based on their county of origin, acculturation level, socio-economic status, and whether they are born in the United States or in another country.⁷ This report focuses on several behavioral risk factors for cancer in Latino women: obesity, unhealthy dietary practices, low levels of physical activity, and cigarette smoking, and the research that is currently being conducted in Hawai'i to address these issues.

Overweight [Body Mass Index (BMI) ≥ 25 kg/m²] and obesity [(BMI) ≥ 30 kg/m²] have been linked to certain types of cancer,⁸ and obesity has been cited as second to smoking in terms of the number of deaths it causes.⁹ Latino women are disproportionately affected by obesity and data indicates that 33.2 percent of Mexican Americans are overweight and 33.5 percent are obese.¹⁰ Diet, physical activity, and body image are three factors that influence the development and maintenance of obesity. For example, Latinos and Native Hawaiians have a higher calorie intake than other ethnic groups,¹¹ and Latinos also tend to be less physically active¹² than non-Latino Whites which may place them at an increased risk

for obesity and cancer. Obesity is also affected by body image.¹³ Among Latino women, there tends to be a cultural preference for a large body type,¹⁴ which may affect their decision to lose weight. Finally, in terms of cigarette smoking, non-Latino White women (23.3 percent) are more likely to smoke than Latino women (14.3 percent).¹⁵ However, as Latino women become more acculturated into mainstream American society, their prevalence of smoking increases compared to less acculturated Latinos.¹⁶

Hawai'i Hispanic/Latino Health Community Advisory Board

To address the behavioral health risk factors that are prevalent among Latinos in Hawai'i, a Community Advisory Board for Latino Health issues was developed in the Fall of 2003. The purpose of the Hawai'i Hispanic/Latino Health Community Advisory Board (HLH-CAB), or in Spanish, *Junta Consultiva Sobre la Salud de la Comunidad Hispana/Latina en Hawai'i*, is to provide feedback to enhance the cultural appropriateness of health research programs focusing on Latinos in Hawai'i in the areas of obesity, physical activity, and tobacco use, since these health issues are associated with the four major causes of diseases and deaths in Latinos. The philosophy of the HLH-CAB is based on a community based participatory research model,¹⁷ whereby the Latino community has an active role in the development and implementation of Hispanic health programs. The chair/organizer of the HLH-CAB (Dr. Lisa Sánchez-Johnsen) believes in developing an equal/shared partnership with HLH-CAB members and helping to mobilize and empower individuals, families, and communities to take responsibility for improving their health.

The members of the HLH-CAB were selected based on their key leadership positions in the Latino community in Hawai'i and their commitment to Latino health issues. The members were selected by invitation and are diverse in terms of their gender, age, ethnicity, language, country of birth, length of U.S. residence, island of residence, religion, and health status. The 20-member advisory board includes leaders who are committed to the Latino community in Hawai'i, such as owners of Latino newspapers, grocery stores, churches, Latino community organizations, musicians and promoters, radio show hosts, medical doctors and health care specialists, as well as members from the chamber of commerce.

The responsibilities of the HLH-CAB members include: 1) Providing feedback regarding the development and implementation of obesity, physical activity, body image, and smoking cessation research studies for Latinos in Hawai'i; 2) Helping to establish guidelines for research with Latinos in Hawai'i so that programs are conducted in a culturally respectful manner; and 3) Providing

feedback in the area of health education, health training, clinical practice, and other health research areas as it relates to Latinos.

The primary benefit of membership in the HLH-CAB is that members help to empower their community and mobilize their resources so that they have a voice in the way that health research is conducted with Latinos in Hawai'i, with the overall goal of healthier communities, families, and individuals. Members receive a nominal fee, refreshments, and parking expenses when they attend meetings.

Health Disparities Research Studies

Over the past two years, members of the HLH-CAB prioritized obesity as the most important health issue they wanted to address and they were enthusiastic about the author of this article leading this initiative. Three studies that focus on obesity among Latinos are currently underway at the Cancer Research Center of Hawai'i, and are headed by the author of this article. In the first study, called *¡Viva La Salud!* (Live Health!), we are in the process of developing, translating, and adapting measures of eating problems, weight concerns/body image, nutrition, smoking, and physical activity to be culturally proficient for Latinas. Next, we will interview overweight Latina non-smokers and smokers about nutrition, physical activity, weight concerns/body image, smoking, and culture-related variables, as well as logistical and practical considerations regarding the development of obesity interventions. Finally, we will compare the reliability and validity of different measurement tools, and use these assessment instruments in our future interventions.

The purpose of two additional studies, collectively called *¡Viva La Cultura Latina!* (Live Latino Culture!) is to explore the role of acculturation, acculturative stress, ethnic identity, and cultural values-and their relationship to three obesity-related variables (dietary intake, physical activity, and body image) among Latinos on Maui, O'ahu, and the Big Island of Hawai'i. The studies will also assess the feasibility of recruiting Latinos on three islands and compare differences based on island of residence. Finally, results from the studies will help to identify logistical and practical considerations regarding the development of culturally proficient obesity interventions. Over the course of these studies, the HLH-CAB members have offered active, ongoing feedback about the research studies.

Conclusion

Obesity is increasingly recognized as an important risk factor for the development of certain types of cancers. Latinos have among the highest rates of obesity in the nation and are also the largest ethnic minority group in the United States, making their health concerns a national priority. The studies being conducted at the Cancer Research Center of Hawai'i are the first to address Latino health disparities in Hawai'i. The HLH-CAB has been instrumental in helping to develop several behavioral risk factor studies that address obesity, unhealthy eating, physical inactivity, and smoking among Latinos. Data from these research studies will aid in understanding the important role of culture in obesity and smoking related issues. Ultimately, it is hoped that these studies will also provide us with information about how to develop interventions that will aid in the overall goal of having "comunidades, familias, y personas saludables Hispanas/Latinas en Hawai'i", or "healthy Hispanic/Latino communities, families, and individuals in Hawai'i".

Author's Note

The terms "Hispanic" and/or "Latino" are used interchangeably to describe those whose ethnic origins can be traced to the following countries or regions: Mexico, Puerto Rico, Cuba, Central or South America, or other Spanish, Hispanic or Latino countries/regions.

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For more information on the Cancer Research Center of Hawai'i, please visit our web site at www.crch.org.

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3/11	Multi	The Queen's Medical Center	Hilton Hawaiian Village, Honolulu	The Queen's Medical Center Conference on Quality and Patient Safety Conference, "A Brave New World"	Tel: (808) 547-4406
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4/21/-422	ORS	Hawai'i Orthopaedic Association & The Queen's Medical Center	Hawai'i Prince Hotel, Honolulu	21st Annual Combined Orthopaedic Spring Symposium	Tel: (808) 630-1586
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4/28-4/29	Primary Care Physicians, VS, R	Straub Foundation	JW Marriot Ihilani Resort & Spa Ko Olina, O'ahu	7th Hawaii Vascular Scientific Symposium	Tel: (808) 524-6755
May 2006					
5/4-5/6	Multi	Department of Native Hawaiian Health, John A Burns School of Medicine, University of Hawai'i	JW Marriott Ihilani Resort & Spa Ko Olina, O'ahu	He Huliau - A Turning Point: Eliminating Health Disparities in Native Hawaiians & Pacific Peoples Cardiovascular Disease 2006	Tel: (808) 587-8563 Web: http://www.hawaiiexport-center.hawaii.edu/
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benefit in ads and promotional materials, why should they actually commission solid scientific studies? The pity of it all is that herbs might have real value as medicine if we understood them better, could buy them in standardized form, and knew how much of them to take.

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❖ MOMMA, DON'T LET YOUR BABIES GROW UP TO BE CHEER LEADERS...

Some startling statistics regarding injuries to cheer leaders and pom-pon girls were reported in the journal *Pediatrics*. Using data collected from hospital ERs, investigators found that 208,000 cheer leaders injuries in children ages five to eighteen, were recorded in the twelve years from 1990 to 2002. Moreover, in that time period, the frequency jumped 110 percent as 10,900 visits occurred in 1990 and 22,900 in 2002. Strains and sprains made up 70 percent of the damage, but fractures and dislocations were 16 percent, and closed head injuries were 3.5 percent. These numbers are believed to be far below reality since many injuries are treated by school trainers and family physicians, and never see the ER. A good portion of the problem is that cheer leading is not considered a sport, so the participants and their coaches have no training in gymnastics, often lack adequate practice facilities, and are not taught how to avoid injuries when falling. Be careful out there.

❖ VAGINOPLASTY? HYMEN-RECONSTRUCT?

In this over-populated world gone more than slightly nuts, the current practice of a few surgeons is vaginal plastic surgery. "Revirgination" or hymenoplasty can be obtained for around \$1800, and one woman called it the ultimate gift for the man who has everything. She plans to give her husband a "virgin" to celebrate their 17th wedding anniversary. The operation has been known for some time in the Middle East and Latin America where an intact hymen has exaggerated significance. This absurdity is further magnified since the membrane frequently ruptures with non-sexual activity such as athletics. No data is available, but now the procedure is becoming more popular north of the border. One New Jersey gynecologist has been performing hymenoplasty since 1975 when he had one or two patients a year, but now he markets the operation and does ten a month. This ought to be enough, but more of the plastic surgery vogue is vaginal cosmetic surgery where some women want to redesign their private parts to make themselves more attractive.

❖ DON'T HAVE YOUR HEART ATTACK IN THE BIG APPLE.

In New York, statistics show that people are more likely to die from heart attacks than any other state. It is not diet, life style, or stress, but in fact it is public score cards! In 1989, New York became the first state to make public reports on mortality for two procedures, coronary bypass and angioplasty. Almost from day one, surgeons began gaming the system. Five studies published in reputable journals have been recorded, all suggesting that New York heart surgeons are refusing to operate on patients perceived as a greater risk for death or complication. Why jeopardize your good rank? Any doubt was buried when an anonymous survey sent to every doctor who does angioplasty in New York, found that an overwhelming majority (79 percent) admit that the public mortality numbers have discouraged them from caring for risky patients. So, the hospital statistics look great as the mortality for bypass surgery dropped from 3.52 percent to 1.6 percent. Of course, technology and surgical techniques have improved, but risk adjustments make the data meaningless. Michigan does not have surgeons' score cards, and data taken directly from hospitals and compared with New York, found an astonishing fact. If a patient came to the hospital in shock having a heart attack, that person was four times as likely to have surgical care in Michigan than New York. Why does it surprise anyone that doctors would alter behavior to protect their careers? Medicare will soon implement "pay for performance" so let the games begin.

❖ JUST SIGN HERE, THEN I CAN TAKE MORE OF YOUR MONEY!

The Florida Bar rules allow attorneys to collect as much as one-third of any damages in a malpractice case up to \$1 million, 20 percent between \$1 and 2\$ million, and 15 percent exceeding \$2 million, but those are the old numbers. In the fall of 2004, the people of Florida overwhelmingly (70 percent) approved an amendment limiting contingency fees in medical liability cases to 30 percent of the first \$250,000, and 10 percent of all damages beyond that figure. Michael Feiler, president of the Dade County Trial Lawyers Assn, stated that with these changes attorneys would likely ask clients to sign a waiver to increase the contingency fees to make it financially feasible to take a case. Mr. Feiler is asking the client to waive his constitutional right in order to enrich the man who is advising him to do so. But wait! Could that be a conflict of interest?

❖ BEND OVER, AMERICA! HERE COME THE PHARMACY PEOPLE.

Personal account - A good friend has radiation proctitis due to overdose by the radiation therapist. The patient was given a prescription for *Canasa*, an Axcan Pharma, Inc. anti-inflammatory suppository. Checking with five pharmacies in the area, the patient found that prices for a 30 day supply ran from \$284.09 to \$343.69. A phone call to a reputable Canadian pharmacy found that the same medication, 30 day supply was \$54.10, a saving of 80 to 85 percent. Is there any doubt that the pharmaceutical industry is virtually extorting money from the American people, especially when the direct to consumer advertising budget is greater than the R&D expenditure? Congress and the President should be ashamed for allowing this financial abuse of sick Americans.

❖ GENEVA CONVENTION? WHAT'S THAT?

The John McCain amendment to the Department of Defense Appropriations bill states, "No individual in the custody or under the physical control of the United States government regardless of nationality or physical location shall be subject to cruel, inhuman or degrading treatment or punishment." Remarkably, President Bush originally said he would veto the DOD bill if the McCain language was adopted, but after both houses gave the amendment broad support, he backed down. The American Medical Association sent a strong letter to the leadership of the Senate Committee on Appropriations urging prompt adoption of the McCain amendment stating that torture is fundamentally incompatible with physicians' duties to prevent harm and exercise their role as healers.

❖ THE BEST MAN FOR THE JOB IS OFTEN A WOMAN.

Looking for a new employee? Here are some questions you should not ask: (1) Anything related to ethnicity, including place of birth, country of origin, nationality of applicant or spouse or parents, (2) Anything related to disability must be carefully phrased such as asking if the applicant can fulfill a job description (ignore crutches, walkers, canes, wheelchairs, seeing-eye dogs, absent extremities, etc.), (3) Do not ask any question even suggesting religion, such as observing religious holidays, (4) Avoid curiosity about marital status, pregnancy, children, need for child care, and (5) Pose no questions about disease, past or present illness, state of health, or health history. (6) Avoid remarks about hardware in the tongue, lip, eyelid, nasal or ear cartilage, bare midriffs, or malodorousness. You may contact references and ask the applicant to explain any negative responses, and you can do a criminal background check.

❖ EVERY MOON HAS A DARK SIDE.

In Rockville, Maryland, a 44-year old-man got into an argument with his neighbor. As the neighbor left her home with her eight-year-old daughter, the man dropped his trousers to more or less punctuate his argument by mooning her. He was convicted of indecent exposure, but the case was later dismissed. The appeals court judge stated that the law refers to exposure of genital parts and not the buttocks, and if exposure of buttocks is a crime, half the plumbers and most of the bikini clad women at the beach would be arrested.

❖ GREAT LINES WORTHY OF FORGETTING —

- I am the future! (Dan Quayle)
- It's a law of nature. Republicans are more boring than Democrats. (Stewart Alsop)
- I am a loyal Republican. I support President Bush when he's right. I just try to keep quiet the other 95 percent of the time. (Russ Stodd)
- I don't know about politics, but I know a good party when I see one. (Mae West)

ADDENDA

- ❖ Average daily rate for a nursing home private room in 2005 was \$203.00, which computes to \$74,095 per annum.
- ❖ The French work 23.5 percent fewer hours than they did in 1970. Americans work 20 percent more.
- ❖ The most consumed fruit in the United States is the coffee bean.
- ❖ \$18,000 is the sum of money paid for a bar of soap allegedly made from fat liposuctioned from the Italian Prime Minister Silvio Berlusconi. It might make one sing better in the shower.

ALOHA AND KEEP THE FAITH — rts■

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