

Cultural Competency in Ethno Pharmacology

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Received: May 29, 2018; **Published:** May 31, 2018

Abstract

Aims: To provide a review of literature to guide cultural competency in healthcare focusing on ethnopharmacology.

Methods: An integrative review completed using four databases including Science Direct, Scopus, Web of Science, and PubMed that covered the years between 2000 and 2018, and used the key words “Ethno pharmacology” and “Cultural Competency”. Ultimately, 12 studies meeting inclusion criteria were selected for analysis.

Findings: Most of the ethno pharmacology research applies to African Americans, Asians, and Whites, fewer studies targeted Hispanics. Asians require less psychotic drugs dosage, White individuals had a better antihypertensive response to β -blockers than Black individuals. Additionally, Whites responded more favorably to Angiotensin converting enzymes (ACE) inhibitors than did blacks. On the other hand, Black individuals have a better response to diuretics than whites. Globally, in Japan less drugs doses are used compared to US and Europe. Additionally, in Japan, drugs safety is more important than its efficacy compared to the US and Europe regions. Placebo effects are difficult to study, even in the absence of any cultural difference (Balant, 2000).

Implications: This review is foundational to future interventional studies related to drug safety focusing on individual’s genetic prototype. Future clinical trials for new drugs should include multi-ethnic subjects to provide adequate evidence about the efficacy, response, and adverse effects of drugs on various ethnical groups.

Keywords: Cultural competency; Ethno pharmacology

Volume 2 Issue 4 May 2018

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Introduction

The purpose of this paper is to provide a review of literature to guide cultural competency in healthcare focusing on ethno pharmacology. It is important to define some concepts for the purposes of this study to provide holistic understanding of this topic. Ethnopharmacology is the study of differences in response to drugs by different cultures. Individuals from different cultures may respond differently to drugs due to many factors including genetic and environmental factors. Genetic factors are the major determinants of inconsistency in drug effects, responses and adverse effects. Pharmacogenetics is the study of genetic variations in drug response due to inherited differences in drugs pharmacokinetics.

Citation: Alham Abuatiq. “Cultural Competency in Ethno Pharmacology”. *Chronicles of Pharmaceutical Science* 2.4 (2018): 617-621.

Most of the ethno pharmacology research applies to African Americans, Asians, and Whites. Fewer studies have specifically targeted Hispanics who currently represent the largest racial or ethnic group after Whites (Burroughs, Maxey, & Levy, 2002).

Cardiovascular drugs including beta-blockers, diuretics, calcium channel blockers, and angiotensin-converting-enzyme inhibitors are the major drugs that have a proofed variance in their effects among different ethnic groups. For example, White race individuals had a better antihypertensive response to β -blockers than Black/African American individuals. Additionally, White subjects responded more favorably to Angiotensin converting enzymes (ACE) inhibitors than did Blacks. On the other hand, Black individuals had a slight better response to diuretics than Whites (Lindhorst, Alexander, Blignaut, & Rayner, 2007). Antidepressants and antipsychotics, analgesics, and antihistamines are reported to have variance in effects and response on individuals according to their ethnicity.

Environmental factors including smoking, alcohol consumption and dietary intake, have a profound effect on drug metabolism and rate of absorption. Moreover, cultural or psychosocial factors may affect the efficacy of or adherence to a particular drug therapy. The following are themes of ethno pharmacology and correlated cultural sensitive standards that have the potential to sharpen healthcare provider's holistic patient centered care.

Ethnopharmacology Themes by Ethnicity

African American Ethnicity

Many studies have investigated the African American patient's response to various drugs and their pharmacokinetics. African American individuals have the highest prevalence to have primary hypertension at early age compared to other races. Studies found that they require high dose of ACE inhibitors or combinations of antihypertensive drugs including low dose diuretics to effectively reduce blood pressure (Johnson, 2008). Moreover, that African Americans have less response to beta-blocker and ACE inhibitors than Caucasians (Gupta, 2010).

A study focused on African American Heart Failure treatment provided evidence that adding isosorbidedinitrate and hydralazine (BiDil) to standard therapy for heart failure increased survival in black patients with advanced failure. Findings reflected that BiDil users had a 43% higher survival rate during the course of the study, and were 39% less likely to require hospitalization due to Heart failure. The BiDil group also reported a significant improvement in their daily functioning. The US Food and Drug Administration (FDA) approved BiDil primarily for African Americans ethnicity with heart failure (Taylor, Zieschy, Yancy, 2004). Another study investigated differences in airway inflammation in patients with asthma according to patient's race. Results reported that African American subjects display greater eosinophilic airway inflammation, and require a higher dose of glucocorticoids than Caucasians to control their asthma symptoms, regardless of asthma status or severity (Nyenhuis, 2017).

Healthcare provider's cultural competency can focus on client's education and be culturally sensitive to known African American cultural standards, this include Black clients tendency to discontinue medications once symptoms subside. Providing a caring touch is viewed as an essential part of care to improve healing. Culturally they rely on religious rituals and a minister's advice. Health viewed as a gift from God. Haitians and Africans may believe in voodoo. Illness may be God's will or evil influences. Healthcare providers should assess patient's use of any traditional healers and folk medicine. African American patients use cod liver oil, or castor oil to prevent colds, copper or silver bracelets to protect from harm (Quandt, Sandberg, Grzywacz, Altizer, & Arcury, 2015).

Asians Ethnicity

Asian individuals have a lower response to antipsychotic drugs compared to Whites. Asians require lower doses of lithium and antipsychotic medications (Chaudhry, Neelam, Duddu, & Husain, 2008). Asians require lower doses of anxiolytics than Caucasians. Moreover, Asians with hyperlipidemia should start at lower doses of statin (Crestor), to decrease their risk for myopathy and muscle damage (Feng, Wilke, & Baye, 2012). Diabetes is relatively less common in Asians compared to other ethnicities. Dietary restrictions may be difficult to follow, especially considering their way of thinking about food (Wahlqvist, 2001).

Asians have longer life expectancies and lower mortality rates from all causes compared to the general population. Many Asians are influenced by Shinto religious practices, pleasing good spirits is important to health. For Chinese individuals health is a result of forces that rule the world: yin (cold) and yang (hot). Cold illnesses are treated with hot herbs and food; hot illnesses are treated with cold herbs and foods, illness may be diagnosed by touch, and appearance of the tongue (Zhu, Zhang, Liu, Liu, Bai, Ou, 2017). Chinese often use western medicine for acute illnesses and surgery, and fall back to Chinese medicinal practices to treat long-term conditions.

Asians use wide variety of herbal remedies, this increases their risk for drug-drug interactions. Healthcare providers should assess for any use of herbs or traditional healing practices in the first assessment visit. Asians over the age of 65 are less likely make as many visits to healthcare providers compared to Whites. Culturally sensitive communication practices include respecting seniors, since they highly respect elders' views and authority. Asian clients avoid direct eye contact that may be a sign of disrespect, and tend to be polite by answering "yes" to questions.

A study examined how Asian ethnicity patients' health care experiences, and satisfaction with care was done by Ngo-Metzger and colleagues (2004). Results reflected that Asian Americans were more likely to report that their doctors did not understand their background and values ($p \leq .01$), they were more likely to report that their doctors did not listen, spent adequate time, or involve them in decisions about care as much as they wanted. Asian Americans were less likely than whites to report that they were very satisfied with care. They were less likely to receive counseling and less likely to report positive interactions with their doctors than white respondents (Ngo-Metzger, Legedza, & Phillips, 2004). Providing healthcare professionals with a standard and culturally focused assessment protocol may help decrease variance in patient's experiences.

Hispanics

Hispanics may require lower doses of antidepressants than Caucasians. Mexicans are better metabolizers of medications that utilize the CYP 450 2C19 subgroup of liver enzymes when compared to Caucasian and Asian counterparts. Require lower dosages of medications metabolized by the CYP 450 subgroup of enzymes (Claudio-Campos, Duconge, Cadilla, & Ruaño, 2015).

Puerto Ricans have less effective response to the asthma management drugs, genetic factors involving the beta-2 adrenergic receptor gene, which impair the response to albuterol, appear to contribute to poorer outcomes in Puerto Rican asthmatics (Cipriano & Andrews, 2015).

Healthcare professional should be aware that individuals from Hispanics culture tend to stop drugs once symptoms subside. Communication trends is observed when the key person in the household act as the primary decision maker of health related issues. Most Hispanics view health is a gift from God, and reward for good behavior. Health maintenance practices include eating good foods, wearing religious medals and sleeping with relics. Alternative traditional healing practices include using a variety of herbs, teas, dedication visits to shrines, medals, candles and promises to God to change behavior. Hispanics believe illness may be caused by "malajo" or evil eye, and they have strong religious connections with priests to stay connected to god.

White

White individuals have less tolerance to pain, and mandate quick relief of pain. Communication with direct eye contact is a sign of interest and honesty. Most Whites have high expectations that illness will be cured and managed through medications, and seek western healthcare to be totally cured, they may seek different healthcare provider's opinion for chronic illnesses. Moreover, Whites may seek alternative sources of healthcare, like herbal therapies; but they expect that a prescription is a necessary component when seeking care.

Ethnopharmacology, Caucasians respond more effectively to ACE inhibitors than African Americans (Lindhorst, Alexander, Blignaut, & Rayner, 2007). On the other hand, an analysis of a study involving 33,000 patients concludes that low-cost diuretics should be the first-step in hypertension treatment for patients of all races (Fuchs, 2001).

Global View

Most studies were reported from the US, Asian and Europe regions. Blanat (2000) reported that the daily dose prescribed in Japan for most drugs is lower than in the US and Europe. Independent surveys indicate that inter-ethnic differences do not seem to be larger than intra-ethnic variations. Language barriers arise differently if minorities are compared to a majority of patients living in the same country. In Japan, safety is given a greater weighting relative to efficacy than in the US and Europe regions. Placebo effects are difficult to study, even in the absence of any cultural difference (Balant, 2000).

Implications for Practice

This review is foundational to future interventional studies related to drug safety focusing on individual's genetic prototype. Future clinical trials for new drugs should include multi-ethnic subjects to provide adequate evidence about the efficacy, response, and adverse effects of drugs on various ethnic groups. The blend of races and multi-racial marriages are increasing and eventually this increased the multi-racial individuals who may have a totally different ethnopharmacological effect compared to their parents.

Future pharmaceutical clinical trials should include significant numbers of patients representing different ethnic groups and multi-race participants. Inclusion of different racial and ethnic populations in such studies is likely to reveal drug actions and side effects specific to these ethnic groups, and may also lead to the discovery of therapies of specific advantage to patients of varied ethnic backgrounds.

Conclusion

Healthcare providers treating cross-cultural patients must carefully explore the beliefs held by their patient regarding illness and treatment expectations. In addition to the effects of genetic background, and culture on individuals response to drugs. Knowledge of pharmacogenetics effects on pharmacokinetics, and identification of high-risk individuals have the potential to decrease adverse effects on vulnerable patients. Healthcare providers should always assess for any herbal treatment taken by their clients, to decrease prevalence of drugs toxicity or inactivity due to drug-herbs interaction. It is important to consider major cultural practices related to health and illness beliefs, that affecting healthcare decision-making for various ethnic groups.

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