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COUNTRY REPORT

Cultural beliefs on disease causation in the Philippines: challenge and implications in genetic counseling

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Abstract The provision of culturally competent health care is an important professional issue recognized by the pioneer genetic counselors in the Philippines. Being an archipelago consisting of 7,107 islands, the Philippines has approximately 175 ethnolinguistic groups with their own unique cultural identity and health practices. The emphasis on culture in our genetic counseling training recognizes its crucial role in molding an individual's conceptualization of health, as well as other life aspects, especially since the Filipino culture is a mixture of indigenous as well as imported and borrowed elements. As part of this endeavor, we will describe in this paper seven common Filipino cultural beliefs: *namamana*, *lihi*, *sumpa*, *gaba*, *pasma*, *namaligno*, and *kaloob ng Diyos*. We will also share examples on how these common beliefs provide explanation as cause of illness and its implications in our genetic counseling profession.

Keywords Cultural beliefs · Philippines · Genetic counseling

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Introduction

In the field of genetic counseling, cultural sensitivity and competence remain to be major concerns in clinical practice and research primarily because the client base of genetic counselors comes from diverse cultural backgrounds and ethnicities. In the United Kingdom, for example, transcultural genetic counseling service is instituted to provide culturally appropriate genetic counseling to patients coming from various cultural backgrounds (e.g., Asian and culturally deaf patients) (Karbani 2002; Middleton et al. 2007). Being an archipelago consisting of 7,107 islands, cultural influence in the Philippines is important to recognize given the existence of 175 ethnolinguistic groups each with their own unique cultural identity and health beliefs and practices (Summer Institute of Linguistics 2012).

Culture is defined as the "totality of socially transmitted pattern of thoughts, values, meanings, and beliefs" (Purnell 2005). It is not limited to any specific ethnic group, geographical area, language, religious belief, manner of clothing, sexual orientation, and socioeconomic status (Fisher 1996). In *Revisiting usog*, *pasma*, *and kulam*, Tan explains that "culture is inscribed in our bodies and in our minds" (Tan 2008). As such, the relationship of culture and health is important to understand as it impacts an individual's worldview and decision-making process (Purnell 2005). Like in other fields of medicine, the impact of cultural beliefs is increasingly

being recognized as an essential component in the genetic counseling process (Cohen et al. 1998; Edwards et al. 2008; Penn et al. 2010).

Cultural awareness is a prerequisite prior to achieving cultural competency. It is the understanding that a cultural divide exists between the patient and health professional (Winkelman 2009). Though challenging to always be cognizant to cultural awareness, Abad (2012) suggests that the use of explanatory models (EM) of illness could facilitate this task. It provides a framework on the understanding of a patient on the cause of his/her illness, and this may include the meanings and values he/she associates with the condition (Winkelman 2009; Kleinman et al. 1978). Eliciting the EM of genetic illnesses is an important first step since it ensures that the patient and the health care provider (e.g., genetic counselor) are communicating in the same contextual framework, thus minimizing the cultural barrier that initially exists between the two (Winkelman 2009; Abad 2012).

In a way, our popular understanding about health is linked to our natural environment and history. As a result, the Filipino culture has evolved as a mixture of indigenous as well as imported and borrowed elements. There is a combination of pre-colonial folk traditions with Catholic religious concepts brought during the Spanish colonization in the fifteenth to eighteenth century, while the cosmopolitan elements are associated with Western allopathic medicine shared by the Americans in the late eighteenth century until present times. As such, each of us has our own context of experiences which propel us to socially interact, as well as instruct cultural practices to succeeding generations.

Since genetic counseling is an emerging field in the Philippines, it is an opportune time for us to explore on the common cultural beliefs that influence Filipino people's conceptualization of genetic conditions with the goal of providing culturally competent genetic counseling services in the country. For this paper, our specific objectives are as follows: (1) to discuss seven common Filipino cultural beliefs used to explain a number of genetic conditions (i.e., *namamana*, *lihi*, *sumpa*, *gaba*, *pasma*, *namaligno*, and *kaloob ng Diyos*) and (2) to increase cultural awareness on these seven beliefs so that genetic counselors in the Philippines, and in other parts of the world, are able to provide culturally appropriate genetic counseling to their clients of Filipino descent.

To illustrate the concepts of the seven common Filipino cultural beliefs, a brief hypothetical case scenario is used as an introduction for each of the cultural beliefs. Our discussion is limited only to the popular explanation of certain genetic conditions, and this likely represents the perspective of the major ethnolinguistic groups in the country. It is important to highlight that these common cultural beliefs may not necessarily be the same when compared with the worldview of the Philippines' indigenous peoples. In this paper, we will not deal with an in-depth discussion of the EM of illness. Rather, EM was used to facilitate the exploration of the abovementioned seven common Filipino cultural beliefs.

Filipino cultural beliefs

Seven common Filipino cultural beliefs are presented in this paper—*namamana*, *lihi*, *sumpa*, *gaba*, *pasma*, *namaligno*, and *kaloob ng Diyos*. Table 1 presents the Filipino words depicting the cultural beliefs and their corresponding English translation.

Namamana

> BA, a 6-year-old girl, was first brought to clinic due to the prompting of her school teacher. She was observed to be of significant short stature when compared to her peers. However, no pediatric genetics consults were previously pursued because short stature was said to be "*namamana*" in their family. During her evaluation with a medical geneticist, she was diagnosed to have achondroplasia. The family was shocked upon hearing this information.

Namamana is the Filipino language translation of acquiring a behavioral or disease trait from a parent. It is a belief that when a relative has the condition, it is possible that he/she will pass on the trait to the younger generation. In a study conducted to explore the Filipino EM of cleft lip with or without cleft palate found out that the most frequent explanation given by the respondents as an etiology of the condition is inheritance (Daack-Hirsch and Gamboa 2010). The concept of *namamana* is not limited only to the occurrence of cleft lip with or without cleft palate. Like the case example, genetic conditions with accompanying physical deformities such as achondroplasia—*unano*, *maliit na tao*, and *pandak* are the colloquial terms—are also explained by *namamana*. But like BA's case, individuals with achondroplasia may not seek medical care to discuss clinical management issues since their short stature is not of concern for the family.

Table 1 Filipino word/s depicting cultural beliefs and their English translation

Filipino word depicting cultural beliefs	English translation
Namamana	Inheritance
Lihi	Conception or maternal cravings
Pasma	Hot and cold syndrome
Sumpa and *gaba*	Curse
Namaligno	Mystical and supernatural causes
Kaloob ng Diyos	God's will

In the Philippines, another example of a disorder believed to be *namamana* is neural tube defects. In an informal discussion, parents of children with neural tube defects admitted at a tertiary government hospital acknowledged genetic inheritance as a possible etiology of the condition (Abacan 2011, unpublished research). They verbalized that birth defects, especially those manifesting with physical deformity, are said to be *namamana* or *nasa lahi* (in the blood). Although recent literature suggests that there is conflict in this popular belief of neural tube defects among women with affected children (personal communication with Dr. M Abacan 2011), the concept of *namamana* is still an important issue. To explain, nervous system anomalies such as neural tube defects remain in the top three of the most common birth defects reported per 10,000 admissions in a government tertiary hospital (Padilla et al. 2011). Furthermore, this concept is congruent with published studies reporting the increased recurrence risk when a family member is previously diagnosed to have this condition (Barlow-Stewart 2007). Considering the increased risk of recurrence associated with neural tube defects, the concept of *namamana* can be incorporated in the genetic counseling session as a factor that could contribute to the occurrence of neural tube defects in a succeeding pregnancy. In turn, many parents will ask what methods are available to decrease the recurrence risk, and this will be an appropriate avenue to explain the value of folic acid supplementation. Anchoring on *namamana* in public health education campaigns in the promotion of folic acid supplementation among women of childbearing age may be helpful in improving adherence.

Although this concept of *namamana* can be readily explained in conditions with autosomal dominant inheritance, other conditions with other modes of inheritance may be more difficult to explain using this concept. Especially for conditions with recessive patterns of inheritance wherein there are no predecessors who have the condition, some Filipinos may find it difficult to grasp the concept since *namamana* is equated with "the passing on of a trait to the younger generation." Having said this, genetic counselors attempting to explain other patterns of inheritance might need to use a different approach in people who have this concept of *namamana*.

Studies had previously reported that cultural and lay beliefs pertaining to genetic inheritance are not consistent with the scientific explanation based on Gregor Mendel's inheritance patterns (Richards and Ponder 1996; Solomon et al. 2012). Like in *namamana*, the admixture of each of the parent's blood in the offspring gives rise to a trait. Similarly in other cultures, the Xhosa speakers in South Africa, inheritance was understood as the passing down of traits possessed by either the father or mother (Solomon et al. 2012). There is a notion that the presence of physical resemblance in the offspring can be attributed to stronger genes. In some instances, inheritance referred to the passing of traits by the mother who gave birth to the child and in no instance that the father contributed to it. Among the general public, on the other hand, knowledge of inheritance has been shown to be greatly influenced by social relationship and kinship (Richards and Ponder 1996; Timmermans and Wal 2004). For example, in the study of Richards and Ponder (1996), they found out that lay people know more the proportion of shared genes between parents and offspring compared to a sister, uncle, or grandmother. They explained that this is attributed to the nearer and more straightforward social relationships between parents and their offspring rather than to a sister (or brother) and uncles (or aunts). Given the differences on how genetic inheritance is understood, we recognize the need to further distinguish the *namamana* Filipino cultural belief since it provides a glimpse on the understanding of genetic inheritance in the Philippines.

Lihi

> LC is a 25-year-old female who was seen at the local health clinic due to flu-like symptoms. During examination, she was noted to have crab-like arms and legs and her family history revealed that both her parents and a maternal aunt also have the same condition. No prior consultations were pursued due to their family's belief that her maternal grandmother had taken a "*lihi*" for crabs while pregnant, hence giving birth to children with crab-like limbs. On consult, she was diagnosed to have ectrodactyly, or split hand and foot malformation.

Like *namamana*, *lihi* is a concept used to explain why some children are noted to have certain specific characteristics. An ethnographic study done in a municipality in the Philippines referred to *lihi* as a term for conception (Jocano 1973), while some literature referred to it as maternal cravings (Daack-Hirsch and Gamboa 2010). During the *lihi* period, also referring to the first trimester of pregnancy, the pregnant woman experiences a number of physical discomforts including feelings of dizziness, nausea, irritability, and general weakening of the body (Jocano 1973). It is also during this time that the pregnant woman develops intense craving for certain foods and intense liking for certain objects.

The period of *lihi* is accompanied by a number of beliefs (Jocano 1973; Tan 2008). It is believed that an offspring will take the features of the food that the mother has craved for while she is in the *lihi* period. Like LC's case, their family is known by their neighbors as the "family of crabs" since the children have crab-like arms and legs (Sanchez 2011). As mentioned, it is believed that their condition was brought about by their grandmother's craving or *lihi* for crab. In the perspective of medical genetics, their physical features correspond to ectrodactyly which is also known as split-hand/split-foot malformation. It is a genetic congenital anomaly where all or part of one or more fingers is absent, and the hands and feet of people with this condition are

described as "claw-like" (Durowaye et al. 2011). Another example of a disorder associated with *lihi* is lamellar ichthyosis. An affected person manifests dry, thickened, and flaky skin which resembles fish scales. A case on two siblings with lamellar ichthyosis was featured in a local television program (GMA Network Inc. 2012). Local folks explain the cause as *lihi* since the mother was reportedly attracted to the look of crocodile skin, and thus, the children acquired the skin of a reptile.

Together with *namamana*, *lihi* is an important cultural belief among Filipinos that explain a number of physical deformities. As discussed, *lihi* refers to maternal cravings and this usually occurs during the first trimester of pregnancy (Jocano 1973). This is similar with *antojos*, a Mexican belief during pregnancy wherein an infant may be born with some characteristics based on the object of maternal cravings (Barragan et al. 2011).

Pasma

> MP is a 30-year-old female who had just delivered her first child via a caesarian section. The delivery was complicated by severe blood loss and late post-partum hemorrhage, requiring several blood transfusions and prolonged hospital stay. Fourteen days post-partum, the patient complained of uncontrollable emotions. She was admitted with the impression of post-partum psychosis. Assessment revealed a family history of depression disorder. During admission, a family member asks, "*Kaya po ba siya nagkaganyan ay dahil po ba sa pagligo niya pagkatapos manganak*?" (Free translation: Is the reason for her condition a result of her taking a bath after giving birth?). And, a family member answers, "*Siguro napasok siya ng lamig?*" (Free translation: Probably, a cold air entered her body?).

The interaction of hot and cold elements is the basis of the *pasma* concept (Tan 2008), and this is evident in MP's case example. *Pasma* is roughly defined as an "exposure illness" which occurs when a condition considered to be "hot" is attacked by a "cold" element and vice versa (Tan 2008). An individual's homeostasis is attained by a balance between the hot and cold elements, and an illness is caused by a dominance of either hot or cold. Specifically, childbirth and the process of delivering a baby are considered by the Filipino folk belief as "dangerously hot" in nature (Tan 2008). This means that a woman who recently gave birth should not be exposed in hot environment and must not eat "hot" foods because these would just aggravate her condition (Tan 2008). Similarly, she should not be exposed to extremely cold environment (e.g., taking a bath). It is a belief that childbirth leaves the woman with open pores making the mother susceptible to the entrance of "*lamig*" or "*hangin*" which are elements of cold. Manifestations of this will depend on where the *lamig* settles in the woman's body and results in *pasma* or the palpable "knots" in muscles or subcutaneous tissues (Jocano 1973; Tan 2008). In post-partum psychosis, or colloquially known among Filipinos as *nabaliw*, the cold elements of *lamig* or *hangin* settles in the mind causing post-partum depression and psychosis disrupting well-being.

In order to prevent entry of cold elements, folk beliefs recommend the following: (a) massage therapy or *hilot* to break the knots; (b) avoiding cold environment, delaying bathing among post-partum mothers, and avoiding certain foods known to be "extremely cold" or "extremely hot"; and (c) performing *pasuob* where a post-partum mother is wrapped in blanket while sitting on burnt herbal leaves. In the *pasuob*, sweat is produced hence eliminating the cold elements (Maciocia 1998).

Comparing with other belief systems, *pasma* is similar to the Chinese concept of *yin* and *yang*. *Yin* and *yang* refers to the balance between the two opposite, complementary, interdependent forces of nature (Tang et al. 2008). Disease occurs when there is an imbalance in the *yin-yang*, flow of the blood, or disharmony between the natural elements of hot and cold (Low and Ang 2010). Among Chinese-Australians, a recurring belief about the cause of cancer is an imbalance of the *yin* and the *yang* (Yeo et al. 2005). The similarities between *pasma* and *yin-yang* can probably be explained by Chinese influence to the Filipino's belief system as a result of active trade and social relations between the two that started even before the Philippines' colonial era (before 1500s) (Doeppers 1972). *Pasma* is also quite similar with the Mexican cultural belief of *cuarentena* which refers to the 40-day period following birth wherein the mother was prohibited from taking a bath to prevent becoming cold so that she may recover from childbirth easily and to prevent chronic illness (Barragan et al. 2011). *Pasma* and *cuarentena* can both have Spanish roots since the two countries were once Spanish colonies. It can also be attributed to the trade and cultural exchange between the two countries in 1500s–1800s as both are the end points of the Manila-Acapulco galleon trade (Bjork 1998).

Sumpa and *gaba*

> AS, a 12-year-old girl, is noted to have baldness and senile appearance, and her mother shared that these features started when she was 5 years old. At her genetics consult, she was diagnosed to have Progeria and was featured in the local media. Her father referred to her as "*sumpa*" of the family. Her mother narrated that her husband would always beat AS and blamed her for their life struggles. This became habitual and her mother decided to take AS and her younger sisters away.

GV is a 33-year-old married woman who sought consult at the cancer genetics clinic due to changes in bowel movement and sudden weight loss. She was diagnosed with colon cancer, and her family history is significant for multiple members with previous diagnosis of cancer (e.g., kidney, endometrial, renal, and liver cancers). With resignation, the patient shared during the clinic visit that the cancers in the family are due to "*gaba*."

Sumpa and *gaba* are beliefs in the Filipino culture pertaining to a curse. In *sumpa*, the curse is inflicted by a human being. Like in AS's case, she is seen as a curse in the family and explains why they are poor. In contrast, *gaba* is a curse inflicted by a divine being and it is usually God. This is inflicted to a person because he/she committed a social sin. Like GV, the medical family history is noted to have numerous cases of cancer because of the belief that their ancestors were not giving back to the community. This means that their family is perceived to be "business sharks" and exploits the less fortunate. *Gaba* is predominantly a belief of Filipinos in the central islands of Visayas.

The impact of *sumpa* and *gaba* is shared with the whole family and extends to the next generation (Tan 2008). To end its effect, the inflicted person and family members may pursue ritualistic activities and wear amulets.

Gaba and *sumpa* are two interrelated concepts. As discussed earlier, *gaba* is a curse that is inflicted by a higher being when one commits a social wrongdoing. *Sumpa*, on the other hand, is a curse that is inflicted by another human being, i.e., when one does foul things to another who is capable of inflicting a curse. The usual scenario is a person or a member of a family is cursed because a wrongdoing was committed to the person who inflicted the curse, which is used as a form of vengeance or retribution. *Gaba* is a cultural belief that is quite similar with the concept of bad karma.

A belief of the Buddhists, bad karma is said to have afflicted a person when his/her illness is a result of a misdeed in the present or previous life (Kaufman 2005). Aside from *yin* and *yang* imbalance, a number of Chinese-Australians believe that bad karma can cause cancer in the family (Yeo et al. 2005). Bad karma has also been comprehensively documented as a perceived cause of astrocytoma in an adolescent of Cambodian descent (Eisenbruch and Handelman 1990). Like *gaba*, *sumpa* has been attributed as a cause of cancer. In a study of South Asian immigrant in Canada, it is found that among various explanations for the occurrence of cancer which include negative influence of lifestyle, many women attributed cancer as being inflicted by other persons, usually in the form of curses (Johnson et al. 1999).

Namaligno

JH, a 28-year-old female, was admitted in the emergency room for severe abdominal pain and increased abdominal girth. Physical examination and series of diagnostic tests revealed that she has ovarian cancer. She had several prior consultations with a traditional healer who told her that the increase in abdominal girth was due to a "maligno" or a supernatural being who took fancy at her. Her family history showed that her mother and two maternal aunts died of early-onset breast and ovarian cancers.

Beliefs in supernatural beings are widespread in the Philippines. Specifically, *namaligno* is a Filipino belief that a disease is caused by an intervention of a supernatural or a mystical being (Abad 2013). A genetic condition which has been associated with having a mystical etiology is Marfan syndrome. In an informal interview, the respondents verbalized that a person with Marfan syndrome looked like a *kapre*, a mythical tree giant of Philippine folklore. A *kapre* is a dark giant who likes to smoke huge rolls of cigars and hide within and atop large trees such as an old acacia and mango trees. A person with Marfan syndrome was said to be born of a mother who was impregnated by a *kapre*. The *kapre* must have been in love with the mother and sneaked into her bed when the father was out or asleep. Another theory was that the *kapre* possessed the husband, thus impregnating the wife with his own physical characteristics, such as long limbs and hands.

Usually, *namaligno* is used as an explanation in conditions which remain to be mysteries because of the absence of an apparent cause. One of this is the occurrence of sudden unexpected nocturnal death syndrome (SUNDS) which is common in the Philippines (Gervacio-Domingo et al. 2007). Locally, it is known as the *bangungot*. Current literature about *bangungot* refers to it as the Brugada syndrome, but this is still contentious because of lack of molecular and genetic studies to prove this claim (Gaw et al. 2011). Filipino folklore tells that the cause of *bangungot* as a deed of a mythical creature called *batibat*, a huge dark monster covered with thick black hair. *Batibat* is known to attack unsuspecting victims at night, oftentimes, torturing them by sitting on their chest until the victims helplessly gasps for his breath eventually succumbing to death. It is important to note that *bangungot* is described similar to nightmares, and it is oftentimes accompanied by tightening of the chest.

Kaloob ng Diyos

CA is a 33-year-old who came for genetic counseling because of recurrent pregnancy loss. She is a gravida 7 para 0 wherein all pregnancies terminated before 12-

week age of gestation as early embryonic demise or blighted pregnancy. When her psychosocial status was assessed, her acceptance of the situation was embodied with the belief in God's will. She was asked how she was coping with the losses and she responds "*Siguro, kaloob ng Diyos ito*." (Free translation: Perhaps it is God's will that all these happened).

Kaloob ng Diyos means God's will. When a Filipino individual experiences an unexpected event in their life, whether negative or positive, it is typically attributed to the grace of God. This concept helps families cope and accept their life experiences. It provides access to personal empowerment and hope to families. As a means for coping, this concept allows affected families to emotionally move toward acceptance.

It is common among Filipinos, especially those devout to their religion, to surrender their problems to a higher being, usually God. This highlights the Filipino value of religiosity and faith to a higher being, as someone who is all-knowing and almighty. This, however, should not be seen as a weakness on the part of the patient but willingness to offer his/her predicament to God to attain a higher level of enlightenment. This is quite similar to the Filipino attitude of *bahala na*. For both *kaloob ng Diyos* and *bahala na*, what actually happens is that people do whatever they can and then resign themselves to whatever will happen (Tan 2008). This attitude recognizes the limitations of the human being such that the intercession of a higher being is sought when humanly skills are not enough to overcome a problem.

God's will or *kaloob ng Diyos* is an almost universal explanation of disease causation. It has been documented as a perceived cause of cancer among Arab-Americans (Mellon et al. 2013) and Chinese-Australians (Yeo et al. 2005), disability among Somali immigrants in the USA (Carrie et al. 2001), cleft lip with or without cleft palate among Filipinos (Daack-Hirsch and Gamboa 2010), childhood genetic disorders like albinism, club foot, cleft lip, and cleft palate among South African grandmothers (Penn et al. 2010), and disease in general among South Asian immigrants in the USA (Tirodkar et al. 2011). While it may be possible that religious beliefs including God's will may become a barrier in seeking medical help, this is not always the case. In a study on African-American women and their uptake of genetic testing found that women's relationship with God may influence their decision to participate in genetic risk assessment and testing (Hughes et al. 2003). As a personal observation, this belief in God's will is actually even helpful in the acceptance of the genetic condition. Some parents indicate that their child was "God-given" including their genetic condition. As such, they come to terms with the diagnosis of their child. This acceptance aids in the better understanding of genetics concepts and eventually in the whole genetic counseling process.

Implications in genetic counseling

Previous research has shown that cultural beliefs and patient's explanatory models of illness may influence their understanding of their condition, how they decide regarding medical management and treatment options, and how they cope with the condition (Bailey et al. 2000; Barlow-Stewart et al. 2006; Barragan et al. 2011; Shyu et al. 2010). Thus, awareness of cultural beliefs and acknowledgment of personal and patient's cultural context have been recommended in order to have successful genetic counseling consultations and positive patient outcomes (Sussner et al. 2011; Sussner et al. 2010; Zimmerman et al. 2006). In this paper, we provided an overview of the seven common cultural beliefs in the Philippines that are relevant in the practice of genetic counseling. Moreover, we emphasize that these cultural beliefs of disease causation are not uniquely present in the Philippine society. As discussed, there are similar beliefs that are being held onto by other cultures.

In general, Foster (2014) suggested that disease etiologies in the non-Western world can be categorized into naturalistic or personalistic. Naturalistic disease etiologies stem from natural causes or elements like hot, cold, and balance of body systems. Personalistic disease etiologies, on the other hand, can be explained by an "active, purposeful intervention" of an agent who can be another human being, a spirit, or a supernatural entity (Foster 2014). On this note, *pasma* can be categorized under the naturalistic causes while *sumpa*, *gaba*, *namaligno*, and *kaloob ng Diyos* fall under the personalistic etiologies. *Namamana* and *lihi* can be vaguely categorized as naturalistic because neither of them is caused by imbalance of natural elements; rather they are caused by inheriting a trait from a parent and maternal impression, respectively.

The personalistic disease etiologies of *sumpa*, *gaba*, and *namaligno* are important for health professionals because these are the usual reasons why Filipino patients seek the help of a traditional folk healer. The current health system of the Philippines is an example where "dual consultation" or the simultaneous access to both traditional and Western medicine (Penn et al. 2010) is being practiced. Like in the *namaligno* case example, the role of the traditional folk healer as part of the informal health sector is emphasized. It is a common practice especially among Filipinos in the rural areas to initially seek advice from the traditional folk healers. As a result, they influence the concept of disease causation and the decision making of the patient, and it may lead to a situation in which a patient's condition may worsen due to

the delay of clinical diagnosis and pursuance of the recommended clinical management.

Indeed, the strong influence of culture on an individual's understanding of genetic conditions is partly attributed to the minimal or even non-existent basic comprehension of genetic terminologies and concepts (Abad 2012). This limited knowledge on genetic concepts is not only a concern in developing countries like the Philippines. There are a number of studies in developed countries which suggests that there are still a number of popular concepts about genetics that are not congruent with the perspectives of the biomedical model (Christensen et al. 2010; Molster et al. 2009; Richards and Ponder 1996; Shaw and Hurst 2008; Smerecnik et al. 2008; Timmermans and Wal 2004). The findings of these studies point to a need for more initiatives that will improve the general public's genetic literacy. Genetic counselors should provide culturally sensitive and appropriate materials when providing genetics education, whether in the clinical setting, in the classroom, or in the public setting. It should be written and conveyed in a language that is understandable by the intended audience (George 1998; Richards and Ponder 1996).

In order to provide a truly culturally sensitive and competent genetic counseling, the genetic counselor must be able to build trust and rapport with their clients. A study of Mexican women that dealt with cultural health practices during pregnancy revealed that women have never disclosed any pregnancy-related cultural health practice to their health care provider because they were afraid that their health care provider might be dismissive and judgmental of their beliefs (Barragan et al. 2011). Similarly, in a study in Taiwan, parents of children with autism were open to discuss their beliefs in the supernatural etiology of their child's condition after a trusting relationship with the researchers have been established (Shyu et al. 2010). These highlight the need for health care providers, and specifically genetic counselors, to be open-minded, non-judgmental, and engaging when it comes to their client's cultural health beliefs and practices.

Mismatch between the family's traditional beliefs and the "Western" biomedical model can be a barrier in communication and may influence participation in genetics services including surveillance, management, and referral to genetic counseling (Barlow-Stewart et al. 2006). Furthermore, without full recognition and consideration of the cultural beliefs that surround the client's and their families' understanding of a genetic condition, a genetic counseling session might be suboptimally provided (Cohen et al. 1998). A patient may be dissatisfied with their genetic counseling session, and this may likely lead to poor adherence to the recommended medical care and negative health outcomes. It should be emphasized that the "divergence between the clinician's and patient's explanations of illness can impede progress toward improving health outcomes" (Daack-Hirsch and Gamboa 2010). Like a double-sided coin, culture can be perceived as the source of our rich diversity and it can also be seen as a challenge toward better health when the health care provider and the patient are coming from different perspectives. Genetic counselors can use the Kleinman's explanatory models of illness to elicit cultural health beliefs and practices in the clinical setting. Kleinman's framework consists of eight questions surrounding the client's perceived etiology, pathophysiology, treatment, and management modality for a given condition (Kleinman et al. 1978).

Once cultural health beliefs and practices are known, interventions can be properly instituted so that despite these beliefs, genetic counselors can ensure that surveillance, management, and other medical recommendations are done. For example, in the Witness Project, cultural health beliefs were used as interventions to improve the uptake of mammography among African-American women (Bailey et al. 2000). In this community-based program, focused group discussions were done to elicit existing cultural health beliefs of African-American women on cancer. Cultural health beliefs elicited among others include the fatalism attitude toward cancer, that it is a punishment from God, and the stigma that comes with the diagnosis of cancer. In the project, these issues were addressed and incorporated in the messages and educational materials that were given to participants. They also used role models to dispel certain misconceptions about cancer and the fatalistic attitude toward it.

The selected Filipino cultural beliefs discussed in this paper can guide in the provision of psychosocial support as it provides clues on the coping mechanisms of Filipino patients and their families. For example, when a genetic condition appears to have no apparent cause, the patient and the family may resort to use these beliefs as a form of rationalization to explain why they are affected. This is also illustrated in the study of Barragan et al. (2011) where they suggested that cultural health practices may help patients comprehend and make sense of a disease condition that is otherwise overwhelming, and to have a perceived sense of control of the eventual outcomes of the condition. Sometimes, patients may also resort to these beliefs because these offer an explanation that is external to them which is easier to accept rather than to resort to an explanation that is internal to them (i.e., genetic mutation). For example, when patients are aware of a family history of a probable X-linked condition, they may point to a curse that is inflicted upon them to explain why male members of the family are affected and dying at a young age. Curse, in this case, is easier for them to accept as an explanation compared to when provided an alternative explanation of genetic mutation because in the former, an intervention can be done to somehow stop the cycle of the curse, while in the latter no similar intervention can be instituted. It is also important to recognize that some of these Filipino beliefs are embodied in larger sociological and economic factors. Tan (2008) emphasized that *bahala na* (and, by extension, *kaloob*

ng Diyos) are not just forms of fatalism or passive acceptance. The families of a child with genetic problems will seek professional medical care but may, early on, invoke *bahala na* and *kaloob ng Diyos* when they realize they cannot afford the needed interventions.

This paper also highlights the implications of these cultural beliefs in the education and training of genetic counselors in the Philippines. The first and only Master of Science degree in Genetic Counseling in the country was instituted in 2011 at the University of the Philippines Manila (Laurino and Padilla 2013). Cognizant of the need for genetic counselors who are knowledgeable of local culture and language, the degree program actively recruits students from strategic locations in the country to address the cultural and linguistic barriers in genetic counseling and to improve the accessibility of cultural minorities to genetic services.

Conclusion

These selected common Filipino cultural beliefs are complex, and ethnographic studies need to be conducted to provide additional explanation. We also recognize that there are certainly many more concepts that need to be studied, especially for its implications in genetic counseling. Naturally, there will be variations from one ethnic group to another given the possibility of terminology differences due to the large number of languages spoken in the Philippines. Nevertheless, the discussion in this paper shares additional knowledge on how individuals of Filipino descent may conceptualize cause of disease. This information will assist genetic counselors around the world by increasing awareness on our various cultural perspectives with the goal of providing culturally sensitive and competent genetic counseling.

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