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# Cultural conceptions of HIV/AIDS among teenagers in Bolivia, Chile and Mexico

## ABSTRACT

**OBJECTIVE:** To understand the cultural dimensions of HIV/AIDS among adolescent students.

**METHODS:** A cognitive anthropological study was undertaken in Cochabamba (Bolivia), Talca (Chile) and Guadalajara (Mexico), during 2007 and 2008. A total of 184 teenagers (from 14 to 19 years old) were selected by purposeful sampling at secondary schools in each country. Free association lists and pile sorts were utilized. Terms associated with the concept of HIV/AIDS and groups of conceptual dimensions were investigated. Subsequently, consensus analysis was performed using factorial principal components and dimensional analysis through hierarchical clusters and multidimensional scales.

**RESULTS:** The differences between the country contexts were in the degree of consensus in relation to the term HIV/AIDS, which was greater in Cochabamba. In Talca and Guadalajara the youths mentioned metaphors of fighting against HIV/AIDS, while in Cochabamba participants talked about help, support and love that infected people should receive. The similarities among conceptions by youth from the three countries were: the risk factors (unprotected sexual practice and contact with specific population groups), the consequences (physical and social death, being the latter understood as social rejection of people living with HIV/AIDS) and the prevention of illness (based on information and condom use).

**CONCLUSIONS:** For adolescent students, HIV/AIDS is a disease caused by sexual practices and drug use and involves harm, pain and death. HIV/AIDS prevention programs for adolescents should promote science based information on the topic and not concentrate only on the emotional and social consequences of HIV/AIDS.

**DESCRIPTORS: Adolescent. Acquired Immunodeficiency Syndrome, prevention & control. Cultural Characteristics. Health Knowledge, Attitudes, Practice. Anthropology, Cultural. Qualitative Research.**

## INTRODUCTION

Cognitive anthropology studies how people from different cultures acquire information about the world, how they process it, make decisions and act in ways considered appropriate by other members of their culture (cultural transmission). The object of study consists of the cultural domains that are considered as significant categories of knowledge to a particular culture. These domains are created by the population from cognitive rules that allow them to organize ideas, things and structures in their minds, in addition to creating models to perceive, relate to and interpret information.[3] The concepts that define a particular domain

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derive their significance, in part, from their position in a mutually interdependent system that reflects the way a given language or a culture makes a cultural sphere relevant.[20] This means that the populations only speak about domains that are important to them and on the other hand, that their discourse is guided by their cognitions about themes which they are experts about due to being immersed in their own culture.[14]

Its theoretical base is the study of cultural consensus with the help of structured techniques for obtaining information (free lists, card sorting, formation of triads or pairs, among others). These techniques allow for the generation of quantifiable information to prove the assumptions of consensus theory, which is based on the idea that culturally correct information can be established from the shared understanding of the individuals.[14] The study of consensus is based on three assumptions: common truth, local independence and homogeneity in the ítems. The first assumption is the existence of a fixed key response for all informants, meaning that there is a correct response for each aspect. This simply means that it is assumed that all informants come from a common culture and if the common reality is the same for all the informants in the sample, it constitutes a common truth. Local independence assumes that the responses of an informant are given independently of those provided by another person. Homogeneity in the ítems means that each informant has a fixed cultural competency over all the questions (all of which are the same difficulty level).[14]

A large number of studies have been performed with this methodological theoretical focus in diverse areas.[8,10,19] In the health field it has been utilized for the study of cultural conceptions of dengue,[6,17] diabetes mellitus[11] and the concept of quality of life among people with chronic illnesses.[18] These studies have allowed greater understanding of the cultural differences around the themes studied. They have helped disentangle the organization of models and of cognitive explanations that people have in their lives.

In the specific case of HIV/AIDS there are the studies implemented by Caballero & Villaseñor[5] and the one by Lozano et al[12] in Guadalajara, Mexico.

Caballero & Villaseñor[5] studied the cultural consensus of knowledge about HIV/AIDS in urban adolescents, in order to describe the cultural domain of youth from distinct socioeconomic strata. They found high degrees of consensus in all the strata (knowledge was homogeneous) and developed a biomedical model. Nonetheless, it has elements of doubt and uncertainty concerning the similar and divergent knowledge between the strata, which require segmented informative interventions.[5]

Lozano et al[12] explore the cultural dimensions of HIV/AIDS among adolescent students at the Universidad de Guadalajara. The principal results showed that the illness is produced by a virus, is deadly and does not have a cure. The cultural dimensions they found in this population were: first, allusions to an unavoidable death and feelings that result from it; second, biological concepts; and third, considerations of sexual questions and moral designations in regards to sexual practices.[12]

No other studies with this focus were identified in another Latin American population. Nonetheless, it is particularly important to highlight the perspective of adolescents and youth, who are a vulnerable group in the population for the acquisition of HIV.

The objective of this study was to understand the cultural dimensions of HIV/AIDS in adolescent Latin American students.

## METHODS

A systematic collection of data was undertaken under the focus of cognitive anthropology. The coding of information requires statistical handling to perform consensus analysis, which is a quantitative analysis of qualitative data, since it involves converting words or images into numbers.[2]

The study was performed in Cochabamba (Bolivia), Talca (Chile) and Guadalajara (Mexico), in secondary education centers, selected through purposeful,[1] convenience and ease of access sampling. In Cochabama, a public education center run by religious Christian authorities was selected. The population that attends is mostly from the low-middle socioeconomic level of the city center, and one third of the population comes from the city periphery. The groups are from 30 to 35 students. They receive information about sexuality, sexually transmitted infections (STI) and HIV prevention, which is colored by a religious focus. In Bolivia between the years 1985 and 2000, there were 605 cases of HIV/AIDS (52% asymptomatic carriers). The average annual incidence rate held steady at about three cases per million residents (1990-1997). The male to female ratio was less than 5:1 to 2:1, and heterosexual transmission predominated.[a]

In Talca the participating population belonged to three education establishments. Two of them are public and from the Municipality of Talca; the socioeconomic level is low and middle. They have 45 students per class and have basic training in sexuality and little training in STI prevention. The third school is private and belongs to a group of masonry schools throughout the country. It has 25 students per class, and the

[a] Organización Mundial de la Salud. Base de datos de indicadores básicos en salud de la OPS: Bolivia [Internet]. Washington; 2008a [cited 2009 Mar 19]. Available from: http://www.paho.org/spanish/dd/ais/cp_068.htm

students are of middle and high socioeconomic level. The training in sexuality and STI is deeper and more structured than in the other schools mentioned. In Chile there was an annual accumulated HIV/AIDS incidence rate of 31.7 per 100,000 residents in 2001, with a predominance of the sexual transmission route. In addition, there is a tendency towards the feminization of the epidemic, which is reflected in the proportion between men and women (7.1:1).[b]

In Guadalajara, the selected school is in a central zone of the city, where youth come from a socioeconomic level that varies from low-middle to high-middle. According to the psychology counselor at the center, the majority of students live with their parents, who promote Judeo-Christian values in their children. The school provides the students with informational sexuality classes, which are influenced by the values of each teacher that promotes in some way a moral education. In regards to Jalisco, there is a political and social context where the State works to promote moral values more than promoting campaigns with scientific content. For example, state resources go to campaigns that promote sexual abstinence, while there was a reduction in the promotion of condom use. In Mexico, in 1999, there were 40,744 HIV/AIDS case, and AIDS was 16 among the principal causes of death at 4 per 100,000 residents. For the year 2000, the accumulated incidence was 1 per 100,000 residents.[c] The male female ratio for 2010 is 11:2.[d]

The sample size in each context was based on the assumptions of the cultural consensus model for the study of cultural norms. This also suggests that in cultural description studies the sample size must not be large, since the average correlation between informants tends to be high (0.5 or more). The two factors that determine the number of informants are expected cultural competency (agreement between individual responses and the estimated norm of correct responses for the group) and the acceptable confidence level to determine the response to the question. Romney et al[14] suggest a minimum size of 17 informants to correctly classify 95% of the questions, with an average expected cultural competency of 0.5 and a 95% confidence level.[14]

The project had two successive data collection between April of 2007 and September of 2008: one with the free lists and another with the pile sorting technique. A total of 184 youth participated (belonging to the three contexts) of between 14 and 19 years old. In Cochabama a total of 53 informants were interviewed in the first collection and 27 in the second phase (80 in total, with a mean age of 16.2 years). In Talca 44 informants were interviewed in the first phase and 20 in the second (64 total, with a mean age of 15.2 years). In Guadalajara 20 informants were interviewed in both collections (a total of 40 with a mean age of 16.5 years).

In the first phase of the study the free lists technique was used[3], which consists of asking the informants for a written list of terms or phrases related with particular conceptual sphere, in this case the abbreviations: HIV/AIDS. After obtaining the word lists, the terms were tabulated for frequency of mention, which allowed for choosing 20 terms from each list, in order to generate the retrieval tool for the pile sorts (implemented in the second phase of the study).

Pile sorting[3] consists of developing cards for each term and asking the informants of both sexes to form groups of cards containing the most similar terms, without worrying about the number of groups generated. Afterwards, they are asked to title each pile with one word that identifies the group of selected cards.

Consensus analysis was performed by principal components factorization, dimensions analysis through hierarchical clusters and multidimensional scales. With the later analysis, the stress value was calculated as a measure of wellness for the adjustment of the representation of the groups. This measure is defined as the sum of agreements between pairs of objects in a spatial representation. Sturrock & Rocha[16] suggest that a cutoff value of stress of less than 0.2 is needed for a representation of 20 terms. The analyses were performed with the ANTHROPAC v.4.98 computer program.[4]

The research project which was the basis for this study was evaluated and approved by the research ethics committee of the Instituto Regional de Investigación en Salud Pública del Departamento de Salud Pública de la Universidad de Guadalajara. The approval date was October 11, 2006, under registration number DSP/IRISP/00009/06. Before each interview the objectives of the study was explained and verbal informed consent was obtained. Participants' anonymity and confidentiality was guaranteed in the collection and analysis of data. The participation of the interviewees depended upon their voluntary acceptance.

## RESULTS

The words mentioned by the informants of both sexes in the three contexts are contained in Table 1.

[b] Organización Mundial de la Salud. Base de datos de indicadores básicos en salud de la OPS: Chile [internet]. Washington; 2008b [cited 2009 Mar 19]. Available from: http://www.paho.org/spanish/dd/ais/cp_152.htm

[c] Organización Mundial de la Salud Base de datos de indicadores básicos en salud de la OPS: Mexico [internet]. Washington; 2008c [cited 2009 Mar 19]. Available from: http://www.paho.org/spanish/dd/ais/cp_484.htm.

[d] Centro Nacional para la Prevención y el Control del VIH/Sida. Casos acumulados de SIDA por edad y sexo. [internet]. México; 2010 [cited 2010 Jun 30]. Available from: http://www.censida.salud.gob.mx/descargas/2010/30junio2010/casosedadsexo30junio2010.pdf.

**Table 1.** Words obtained through the free lists by adolescents on the concept of HIV/AIDS. Cochabamba/Bolivia, Talca/Chile and Guadalajara/Mexico, 2007-2008.

| Tipe | Bolivia | Chile | Mexico |
|---|---|---|---|
| Descriptors | | | |
| Lexicon | Illness | Illness | Illness |
| | Syndrome | Infection | Sex |
| | Virus | Virus | Infection |
| | Infection | Immunodeficiency | Virus |
| | AIDS-related | Syndrome | |
| Composition | Death | Few days of life | Without defense |
| | Pain | Little self-love | Physical pain |
| | Harm to body | Pain | Moral pain |
| | Little life | Poor life and health | Depression |
| Neighborhood | | Death | Death |
| | Immunologic | Sexually Transmitted Infections | Immune system |
| | Blood | Blood | Blood |
| | Sex | Sex | Sexual relationships |
| | Desire | Sexual relationships | Homosexual |
| | Homosexuality | Homosexuality | Promiscuity |
| | Addiction | Youth | Prostitutes |
| | Condom | Drugs | Drugs |
| | Health | Condom | Condom |
| Practices | | | |
| Actions | Care | Knowledge | Abandon |
| | Abstinence | Care | Decision-making capacity |
| | Love | Overcoming | Contagion |
| | Support | Fight | Care for life |
| | Help | Preserve | Lack of care |
| | Education | Win | Lack of information |
| | Prevention | Lack of culture | Irresponsibility |
| | Imprudence | Irresponsibility | Ignorance |
| | Irresponsibility | Condom misuse | Piercing |
| | Negligence | Little caution | Prevention |
| | Vengeance | Sex without protection | Promiscuity |
| | Prostitution | Sexual transmission | Protection |
| | Transmission | Contagion | Prostitution |
| | Contagion | Medical treatment | Tattoo |
| | Expensive treatment | Difficult to treat | Transfusion |
| Functions | Agony | Warning | Remorse |
| | Change | Decadence | Disability |
| | Deficiency | Fear | End of life |
| | Degeneration | Loneliness | Impotence |
| | Discourage | Suffering | Fear |
| | Loneliness | Shame | Hopeless |
| | Suffering | Agonize | Indifferent |
| | Terror | Loneliness | Desperation |
| | Shame | Suffering | Loneliness |
| | Torture | Sadness | Suicide |
| | Sadness | Social rejection | Terror |
| | Dishonor | Social isolation | Sadness |

To be continued

Table 1 continuation

| Tipe | Bolivia | Chile | Mexico |
|---|---|---|---|
| Functions | Fear | Discrimination | Disdain |
| | Danger | Insecurity | Dislike |
| | Punishment | Danger | Discrimination |
| | Rejection | Rejection | Rejection |
| Attributes | | | |
| | Misfortune | Contagious | Value |
| | Despicable | Incurable | Incurable |
| | Ugly | Harmful | Sad |
| | Incurable | Overcrowded | Injustice |
| | Unfortunate | Mortal | Bad |
| | Bad | Blight | Bad luck |
| | | Venereal | Mortal |

In Bolivia the dimensions described in the tree clusters had adequate adjusted wellness values (stress = 0.091), in the nonmetric multidimensional scaling analysis.

The grouping made by Bolivian youth of both sexes is shown for the words listed in Figure 1. It can be observed that two large dimensions exist about the concept of HIV/AIDS, which the youth themselves described as a 'before' and an 'after'. They included the 'causes' of the illness in the before, including 'prevention' (together with the 'temptation' that sexual relations represent), the 'risk' and the 'contagion' (which leads one to suffer with the illness and die from it).

The after was described as 'social death', including 'no desire to live' (due to fear and pain caused by the illness) and 'psychological pain' (which implies social isolation from discrimination as well as all the other negative consequences of the illness).

Figure 2 shows the conceptual dimensions that Chilean youth have of HIV/AIDS. The dimensions described in the tree clusters had adequate adjusted wellness values (stress = 0.138) in the nometric multidimensional scaling analysis.

The dimensions fell under two large themes: one being 'what AIDS is" and the other 'psychological consequences'. The first case (what AIDS is) contained the sub-dimensions of 'life with AIDS' (composed by 'dying while alive', 'physical consequences' and 'risk'), 'warnings' and 'information' (consisting of 'causes and prevention'). The psychological consequences included 'emotions' (Figure 2).

In Mexico the dimensions described in the cluster trees had adequate adjusted wellness values (stress=0.141) in the nometric multidimensional scaling analysis.

Figure 3 shows the conceptual dimensions identified by analysis of clusters in the group of youth participants, which followed two large dimensions: one being 'contagion' and the other being the 'future'. The first case (contagion) included the sub-divisions of 'infection' (divided into 'incurable illness' and 'lack of information') and 'careless' (consisting of 'sex without protection' and 'prevention'). The second dimension (future) divided into 'consequences' (consisting of 'irreversible' and 'resignation') and rejection (divided into 'discrimination' and 'feelings') (Figure 3).

**Table 2.** Level of cultural consensus about the term HIV/AIDS in the three contexts (expressed in factorial reasons and accumulated variance of factors through cultural competencies and group agreement). Cochabamba/Bolivia, Talca/Chile, Guadalajara/Mexico, 2007-2008.

| Participants | Factor Ratio 1 (F1) | Accumulated variance % | Factor Ratio 2 (F2) | Accumulated variance % | Ratio F1:F2 | Cultural competency[a] Average | SD | Group agreement[b] |
|---|---|---|---|---|---|---|---|---|
| Bolivia (n = 27) | 12.07 | 91.1 | 1.186 | 100 | 10.1 | 0.627 | 0.233 | 0.393 |
| Chile (n=20) | 8.317 | 71.1 | 2.085 | 95.1 | 3.9 | 0.56 | 0.319 | 0.313 |
| México (n = 20) | 7.99 | 84.2 | 0.974 | 94.4 | 8.2 | 0.600 | 0.198 | 0.360 |

SD: Standard deviation
[a] Cultural competency: group arithmetic mean of the degree of individual agreement with the average responses
[b] Group agreement: Cultural Competency squared
Source: Consensus analysis from the pile sorting

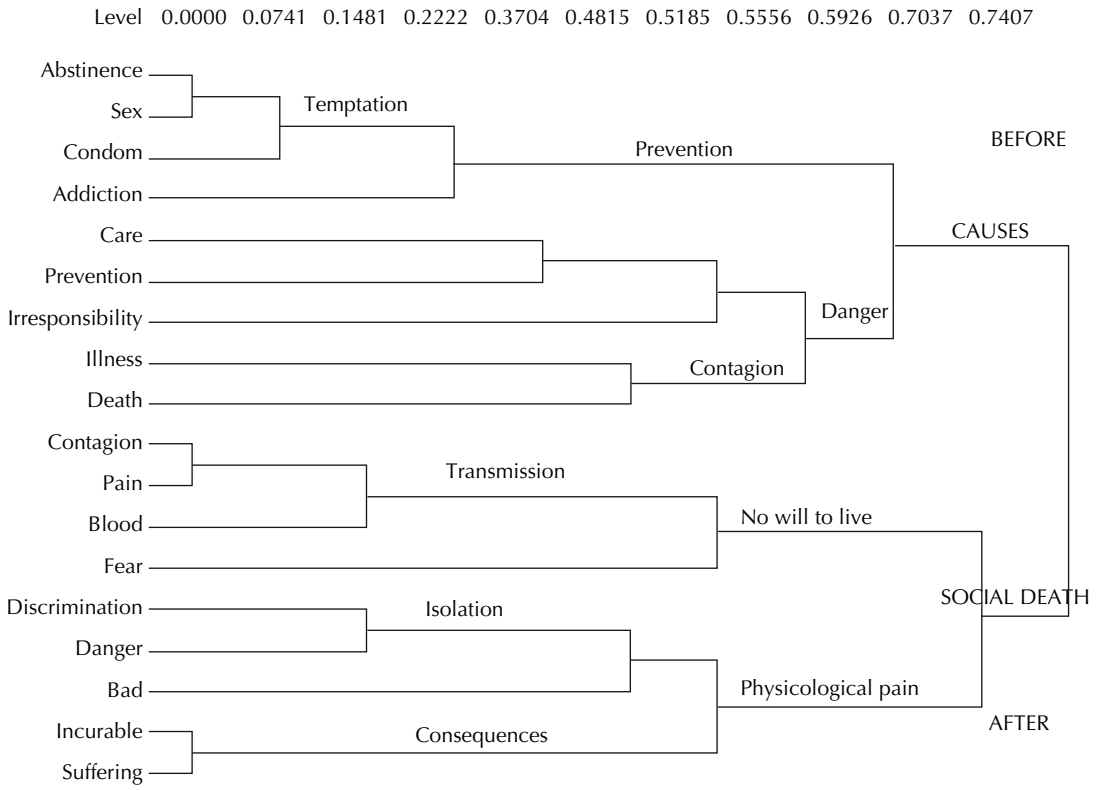


**Figure 1.** Conceptual dimensions of HIV/AIDS among the group of adolescents, according to hierarchical groupings. Cochabamba, Bolivia, September of 2007.

Regarding the cultural consensus about the conception of HIV/AIDS, Table 2 presents the organization of the distinct dimensions of HIV/AIDS. It reached a factor ratio of 12.07 in Bolivia, 8.317 in Chile and 7.99 in Mexico. The factor ratio respect to a factor of 2 was respectively 8.2, 10.1 and 3.9, which indicates a high degree of cultural consensus (especially in Bolivia). The rule is that this factor should be more than three times the variance of the second factor, which occurred in the three cases. The accumulated percentage of variance for the reason between the factors 1 and 2 was greater than 70% in all the contexts; the average individual cultural competency was greater than 0.50, confirming a cultural consensus for these values. The social values greater than 0.3 for the measure of group agreement describe homogeneity in the conceptual organization of the dimensions and also validate the consensus.

## DISCUSSION

Knowledge about the cultural conceptions of HIV/AIDS is conditioned by each context, since it shows differences in the three places studied. There was a greater degree of consensus in Bolivia than in Chile and Mexico. This may be due to the sociodemographic characteristics of the youth participants, in particular the religious membership of the Bolivian youth, who highlighted that infected people should receive care, support and love. Meanwhile in Chile and Mexico the youth mentioned metaphors of the struggle against the illness. The conceptions make up the idiosyncratic differences that make up the cultural matrices of the participating populations.

The Bolivian youth conceptualized HIV/AIDS as an illness or syndrome caused by sexual practices as well by drug consumption which harms the body through its immune system and brings death. They perceived two stages: the first stage centered on the causes of the illness, and the second focused on the social death from the sickness. For the causes they mentioned situations involving risk and temptation that cause infection from not using protection during sexual acts. Under social death, they indicated not having a will to live, in addition to identifying psychological pain as a consequence of social isolation.

For both sexes of youth from Chile, the cultural conception of HIV/AIDS is that it is an illness or infection that involves pain and poor quality of life, which brings death. It is caused by risky sexual practices without protection, by drug use and by blood transfusion. There were two dimensions: the first emphasized the implications of living with the illness, such as it dying while still alive due to irresponsibility, in addition to the physical consequences and bodily changes. The

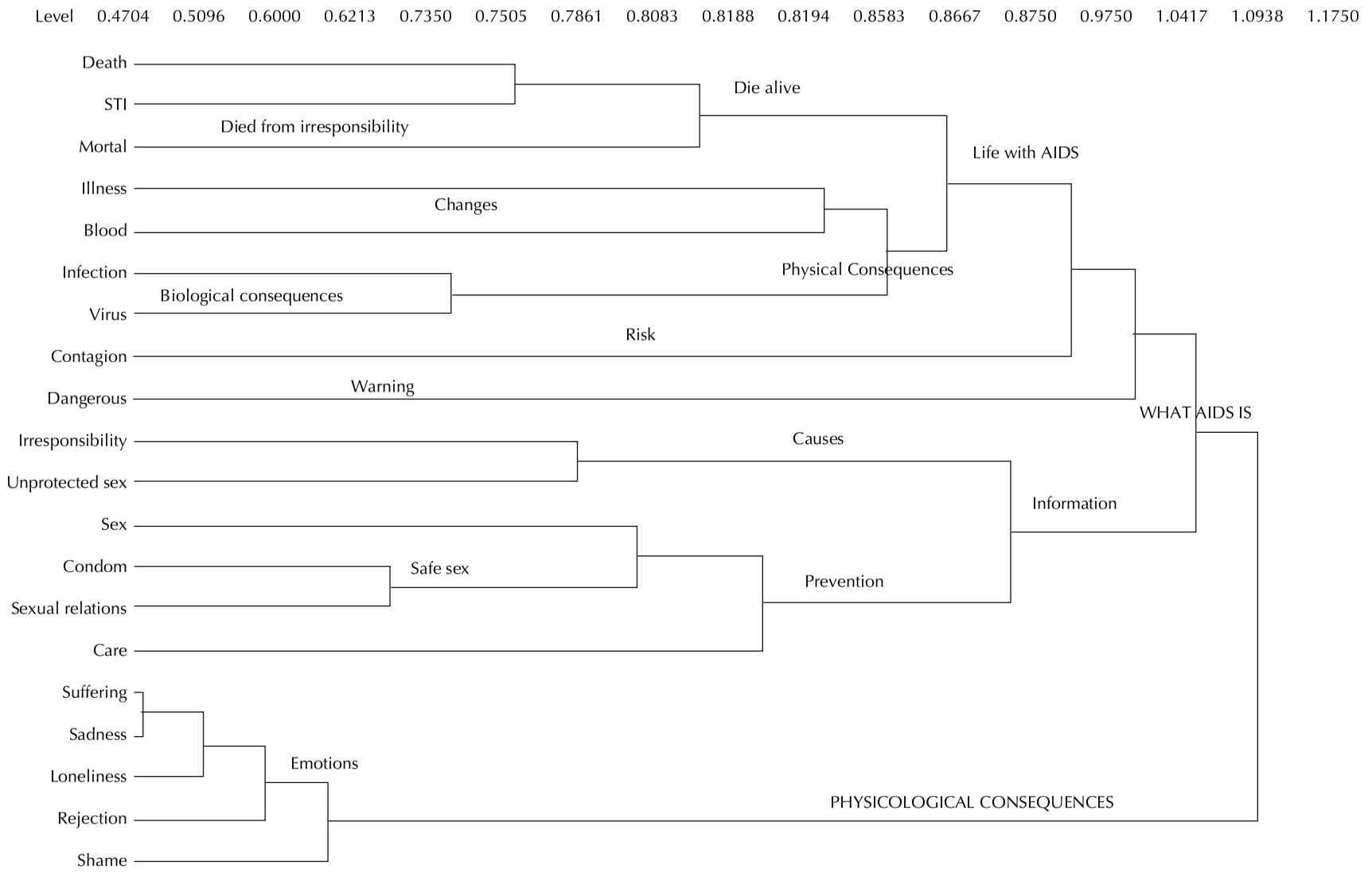


**Figure 2.** Conceptual dimensions of HIV/AIDS among the group of male and female adolescents, according to hierarchical groupings. Talca, Chile, 2008.

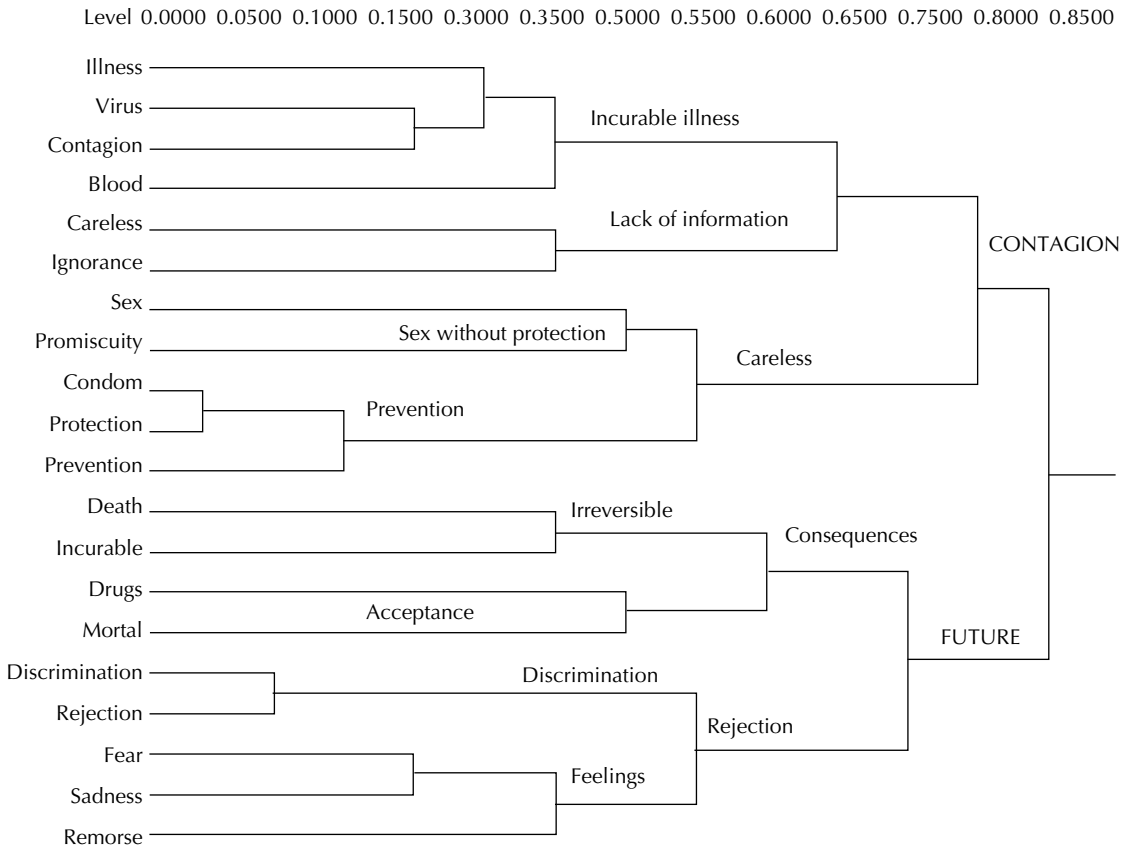


**Figure 3.** Conceptual dimensions of HIV/AIDS among the Group of adolescents, according to hierarchical groupings. Guadalajara, Mexico, January 2009.

also described the importance of necessary information about the causes and the prevention of infection (like the protection used in sexual relations and the practice of safe sex). The second phase emphasized the psychological consequences of the illness focusing on negative emotions.

Mexican youth conceptualized HIV/AIDS as a mortal illness or infection that brings different types of pain (physical and moral) caused by risky sexual practices (homosexuality, promiscuity, prostitution) without protection as well as blood transfusion. For them the illness has two phases: the first was about the infection (a fatalistic view and the lack of prevention shown in personal carelessness), and the other was about the future implication which come together with the infection, such as physical death and social death (identified with rejection and discrimination).

Although these results only represent the views of the participating populations, it can be observed that they share the fact that the information received about HIV/AIDS prevention is filtered by a series of moral values specific to each context. This is reflected in the shared cognitive representations that manifest in the semantic structure of cultural domains.[15] It is in these domains that one can observe references to sexual practices (such as promiscuity), how attractive the practices are and the contact with specific population groups (homosexuals and sex workers) and the use of injection drugs. These practices were classified as irresponsible behaviors, as if the youth view exposure to these risks as dependent only upon individual choice. Meanwhile, social factors and the influence of group members that people live with were excluded.

One of the ideas shared about HIV/AIDS was the inevitable consequence of physical and social death once suffers from the illness. The association of AIDS with physical death had previously been described.[12] In actuality, with free antiretroviral therapy available in these three countries, AIDS is no longer considered a mortal illness and has become a chronic illness. The association persists since death has been used as a prevention strategy.

In regards to social death, the highlighted points were emotional, emphasizing isolation, discrimination and social rejection of infected people. This may be related to the participants' adolescent life-stage. Social support is needed to confirm their social identity through the function of belonging.[9]

Another conception concerned the ways of preventing HIV/AIDS, which were information and the use of protection during sexual relations. This indicates that information about the prevention methods does exist in the studied contexts. It would need to be confirmed if this information really influences sexual practices, since there is a perception of invulnerability on the part of youth towards potential contagion.[7]

In regards to the methodology, we propose a form of scientific understanding of the population's cultural conceptions with strategies to collect data easier and faster than through traditional interviews. This allows for the examination of a large quantity of data in a coherent and accessible manner; facilitates comparisons between subgroups that are flexible; and provides information about cultural representations that may influence practices.[15]

Among the study limitations, the type of sampling utilized allows the transfer of methodology,[13] but the findings were not generalizable. Future studies could utilize samples stratified by age, sex, socioeconomic level, place of origin and other groups that may strengthen (and make more generalizable) the study results.

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