6th International Conference on Intercultural Education "Education and Health: From a transcultural perspective"

Health education from an ecological perspective. Adaptation of the Bronfenbrenner model from an experience with adolescents

Verónica C. Cala[a]*, Encarnación Soriano[a]

[a]Universidad de Almería. Cañada de San Urbano.04120, Almería, Spain

Abstract

Health requires the use of conceptual frameworks in order to understand it in its entirety and all its complexity. The ecological model of Bronfenbrenner is presented as a tool to collect the different variables involved in the conceptualisation of health.

The research shows health discourses and lifestyles referred to by a group of adolescents from an ecological, salutogenic and cross-cultural perspective in order to build health education models derived from their own worldviews.

To achieve this aim, photovoice was used as a methodological tool and the results were analysed using the qualitative data analysis program Atlas-Ti 7.

The results show an adaptation of Bronfenbrenner's ecological model that stems from its application on speeches on health.

© 2014 The Authors. Published by Elsevier Ltd. Open access under CC BY-NC-ND license.

Selection and peer-review under responsibility of HUM-665 Research Group "Research and Evaluation in Intercultural Education".

Keywords: Transcultural health; Bronfenbrenner's bioecological model; photovoice; Adolescents; immigrants; lifestyle; health behaviour..

1. Introduction

The public health approach has changed over time, shifting its focus on various health aspects. After World War II, the importance of infections (the most prevalent diseases, the leading cause of death) was replaced by non-infectious diseases such as cancer, heart and gastric diseases. This entailed a conceptual change, implying an increase in studies on lifestyle habits, lifestyles and behaviours (Hernández-Girón, Orozco-Núñez, & Arredondo-López, 2012).

---

* Corresponding author. Tel.: +34-950015755.
  E-mail address: esoriano@ual.es; vcc284@ual.es

The focus on the promotion of health on lifestyle was reinforced by subsequent studies, such as the Lalonde Report in which it was stated that styles of health and the environment are the two most important factors in health, and are equally the ones that receive less budget (Lalonde, 1974). Despite subsequent criticism of the approach, there is no doubt that it was a paradigm shift for global public health. Institutions such as the WHO developed definitions like healthy lifestyles.

1.1. The different approaches to lifestyles

Before acquiring such importance in the field of health, lifestyles (LS) had already been analysed by different sociological trends. Comas et al, (2003) summarise the four main approaches from which they have been addressed: (1) autonomous who considers that LS are the expression of the characteristics of a social context. They attach great importance to the socialisation process (family and school). (2) deterministic approach (Marx, Weber and Bourdieu) in which LS are determined and mirror the social and economic structures (3)the change perspective (Giddens), understood as plural, multidimensional, almost individual styles and hardly perceptible ways of life that are unresponsive to social, political or economic logic, but can lead to their transformation. And (4) the ecosystem-based approach or the one resulting from a methodological improvement.

According to (Paez Cala, 2012) Bronfenbrenner's ecological perspective allows to bring together parts of the three previous conceptualisations (autonomous, deterministic and change) representing lifestyles as a combination of micro and macro social levels that form a cultural system integrated by three complementary levels: at the first level, the common elements of lifestyle of a society (socialisation elements that have an impact on the collective consciousness, autonomous vision); on a second level, the differences between LS related to structural elements of such society (class, gender, ethnicity and other structural differences that influence behaviour, similar to the deterministic approach); and a third level that allows unity and plurality, ideologies, mind-sets and values that are reflected in the attitudes (similar to the concept of change).

1.2. Characteristics of the Bronfenbrenner Model

Bronfenbrenner provides a theory to analyse the different levels that influence the construction of adolescents' lifestyles, emphasising the importance the environment has on these (Esteban & Ratner, 2010). The model envisages the existence of a number of environments or contexts that may be analysed from four levels, which are all part of the same reality. (Bronfenbrenner, 1987):

- The "microsystem" includes the roles, relationships and activity patterns developed by a person in their relationship with their environment (school, work, family).
- The "mesosystem" or the relation between two or more microsystems in which the person is actively involved.
- The "exosystem" or those environments in which the person in the process of becoming is not so actively involved in but do affect his/her development.
- The "macrosystem" as the relationships, both in form and content of the lower order systems (micro- , meso - and exo-) that exist or may exist at the sub-culture level or the culture as a whole, together with any belief system or ideology that supports these correlations.

There have been several attempts to apply this model within the health field (Torrico et al., 2002), however, most of them focus on a more theoretical or conceptual dimension. No re-interpretations based on empirical studies have been found.

For this reason, the aim of this study is to apply Bronfenbrenner's theoretical model to the study of the speeches given by Romanian and Spanish adolescents from two municipalities in southern Spain.

2. Methods

A qualitative methodology based on case studies with a cross-cultural and gender approach was used to develop this study (intersectional) with the photovoice technique.

The photovoice technique involves a process in which individuals use the camera to photograph their daily health activities and work realities, focusing on the issues of greatest concern in order to communicate these matters and achieve changes in this regard (Wang et al, 2004).

2.1. Methodological development and data analysis

The research involved three phases, as shown in the graph below:

PHASE I	1. Contact with schools 2. Selection of participants 3. Information meeting
PHASE II	4. Photographs collection 5. Semi-structured individual interviews
PHASE III	6. Data Analysis

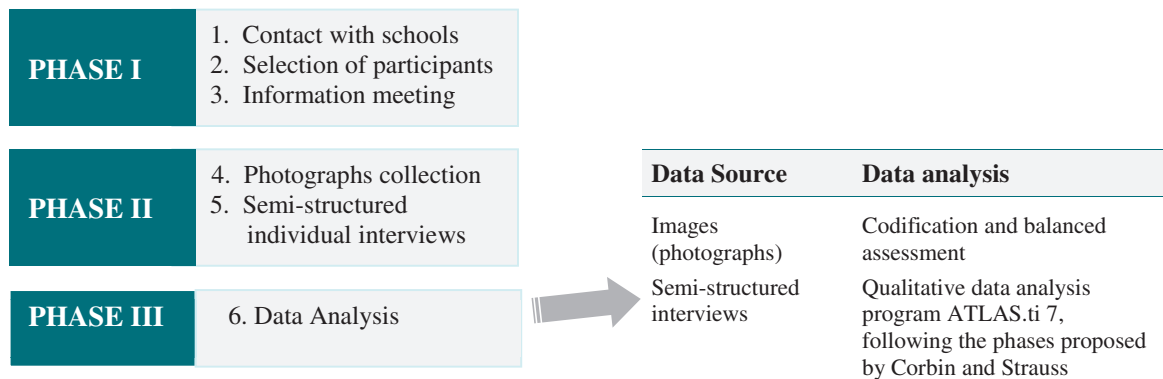| Data Source	Data analysis
Images (photographs)	Codification and balanced assessment
Semi-structured interviews	Qualitative data analysis program ATLAS.ti 7, following the phases proposed by Corbin and Strauss

Fig. 1 Research phases, sources and analysis tools

Three secondary schools in southern Spain were contacted where participants were selected with the help of the counselling and management teams. Training sessions were conducted using photography, the research tool. Participation consisted of taking 15 to 20 photographs that respond to the following questions: What makes me lead a healthy life? Which objects, beings or situations do I associate with health? What promotes and maintains my health? They had to select the 6 most important ones. Subsequently, the photographs taken by volunteer students were collected and semi-structured interviews were conducted in relation to these pictures. The interviews were divided into 3 parts: affiliation of the participants, analysis of the photographs using the SHOWed method (Shaffer, 1983) and a third part regarding more theoretical notions linked to the conceptualisation of the term health, the main health problems and strengths (assets health). The duration of the interviews was approximately 50-70 minutes. All interviews were recorded with a digital recorder and later transcribed. The data was analysed with a qualitative data analysis program ATLAS-TI version 7 according to the phases proposed by Corbin and Strauss (Corbin & Strauss, 2008).

Throughout the investigation it was ensured that the participation was voluntary, conscious and anonymous. No names or identity information has been made public in order to preserve confidentiality.

2.2. Participants

This report provides the results of 30 adolescents (14 male, 16 female) aged between 14-17 from Romania (15) and Almeria (15). The selection criteria were: to be in the third year of Secondary School, to have the origin mentioned above and to complete all the phases of the study (i.e., attend training, hand in authorisations from the people responsible for them, take photographs and take part in interviews).

3. Results and discussion

The image and interview analysis (axial, selective and open coding) resulted in more than 450 categories in 21 families: active, addictions, nutrition, friends or peers, school, body worship, exercise and physical activity, sociocultural differences, healthy environment or neighbourhood, education and expectations, family, hygiene and sleep, leisure, psycho-emotional aspects, concerns, health, sexuality, society, technology and social media, time and identity.

These families have been structured according to the ecological model are represented in figure1. It may be observed that, changes have been made to both the approach and the original scheme proposed by Bronfenbrenner. The integrated changes address fundamental aspects in the analysis of health and lifestyles. The main ones are (1) the inclusion of certain important individual elements in the perception of health (2) the inclusion of social media as a socialisation agent in health in the microsystem (3) the adjustment of the meso-system to the study of lifestyles(4) 3 determinants of health that pass through the systems have been introduced: origin, gender and class given that they are three fundamental structural systems that determine the differences in each element in the model (transcultural, gender and class approach).
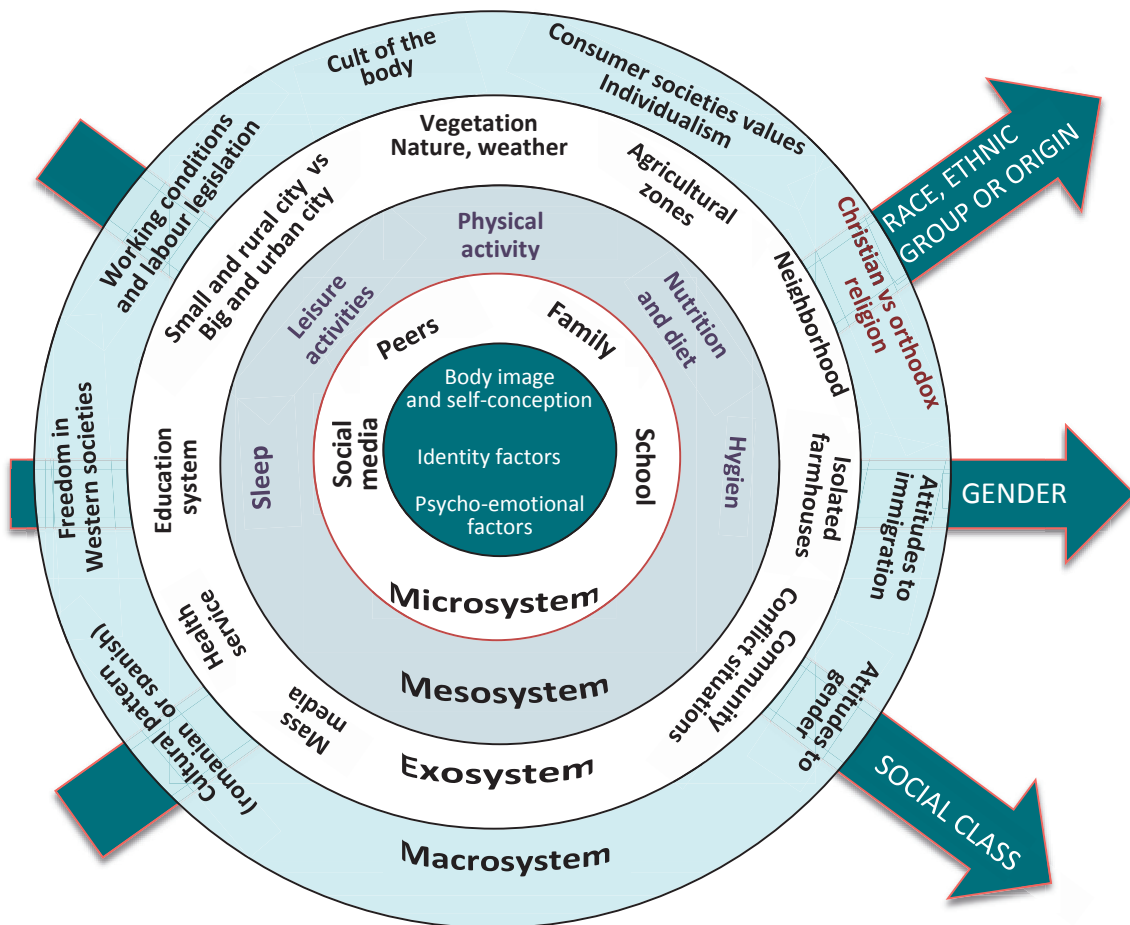

Fig. 2. Adaptation of the ecological model. Elaborated by the author

The relationships established are more complex than the ones shown in the figure since they are not exclusively limited to the system in which they have been placed. The relationships and influences defined do not occur linearly, they are bidirectional; all of the elements or subsystems are inter-related and influenced to a lesser or greater degree.

3.1. Explanation of each level or system within the model

Some of the main features of each level or context shall be explained below and some important elements in health-related habits (meso-system) shall be presented.

(a) "Personal System". Bronfenbrenner understands the subject as influenced by the environment but also as a developing and dynamic entity, which gradually becomes involved in the environment and can even modify it (Bronfenbrenner, 1987).The subject as a *constant process of change and construction, and "movement of self-development"* (Deleuze, 2002 , pág. 91).In the adjustment, certain important elements in the process of development and construction of the participants have been taken into consideration: subjectivation or identity processes, psycho-emotional factors and the body (both physical and their perceived capacity of being able to change it). The environment also influences all these factors.

The *subjectivation or identity processes* were noteworthy for presenting a conception of adolescence that distinguishes between childhood and adulthood that is claimed as a social value, old age, the passage of time, disease and death are stereotyped and rejected (all of these aspects are considered distant and need to be avoided). When they attempt to try to explain what makes them "*be who they are*", some allude to achieving good academic results and future expectations, others mention the time spent on hobbies and activities, mainly football and music (in some cases the gym or art). These activities allow them to define themselves and focus their lifestyle on them. It has been observed that those who identify themselves with sports try to pay attention to the physical and psychological aspects (balanced diet, exercise daily many hours, increase concentration).

The national or cultural identity feeling is more acute among people of Spanish origin than by Romanians (who hardly mention this aspect). In fact, in some cases a phenomenon of dis-identification with their countries and cultures of origin is observed, probably motivated by a high degree of assimilation to the country (let us recall that the average time of residence in Spain is approximately 10 years).

As for the *psycho-emotional factors*, as stated by Antonievsky in the salutogenic theory, the most frequently mentioned negative psycho-emotional factor is stress (Rivera, Ramos, Moreno, & Hernán, 2011). Stress may be identified in virtually all the dimensions of life: in family relationships, peer pressure, feelings of marginalisation, the perception of difference, the education evaluation systems, stereotyped bodies, the need to attract their peers, isolation, conflictive relations and many other aspects. Stress is, therefore, one of the main factors of discomfort. In contrast, welfare, tranquillity and relaxation are the most frequently mentioned concepts in relation to the definition of health.

The *bodi*es were defined as constant change, transformation and modification spaces, both in its physical and sexual dimension (typical of the adolescence) and also in the adjustment to social needs: change of the body, sexuality.

(b) Microsystem: Includes the main socialisation agents: family, peers or equals, school and social media, considered by the participants as the closest institutions that influence their behaviours, roles and relationships in everyday contexts in which they daily actively take part (Bronfenbrenner, 1987). These are the most influential agents in their lifestyles and health.

Among the four socialisation agents addressed, family is, undoubtedly, considered the most important institution. The role of the mother (who is still responsible for reproductive care tasks that include household work and management) is the most influential factor mentioned in health discourses.

The structure and composition of the family is one of the aspects that presents more differences among the participating groups. The family marital status, the roles assigned to each family member, the employment status or the existence of conflicting relationships were essential differences identified in the lifestyles and health. For

example, characteristic patterns are observed in the group of Romanian participants who are responsible for spending their free time to be with the family, help their mothers with their work (greenhouses) or respecting stricter rules regarding going out.

Peer groups are an important support in the process of identity search by adolescents (Herrero Yuste, 2003). The interviews reflect the enormous need to be part of a group, of being accepted and feeling reflected in a cohort of peers (Sullivan, et al., 2005). The need for adaptation and integration leads to a change in their ways of life based on three pillars considered essential for a better group acceptance: thinness, beauty and success ("to stand out" in some way or be superior compared to the rest). Thus, the group operation itself has both positive and negative effects on health. All the respondents considered that peer pressure is the most important factor regarding addictions and is also what generates more stress, whilst it is also a powerful positive health resource when it comes to support.

They also identified the following as major health problems (stressors): the conflict between peers and discrimination (fear and rejection towards ethnic, physical or behavioural differences).

The *secondary school* is considered a space to acquire some formal knowledge about health through lectures but, in most cases, it is perceived as ineffective and insufficient. Health is hardly included in the teaching material. It is addressed as a problematic space as it is based on results and evaluations, as well as certain dynamics such as bullying that takes place within it.

Social media (Tuenti, Twitter, Facebook...) *and technologies* (television) are also perceived as agents of socialisation. They believe that they have fundamentally changed the way in which they relate and communicate with others, and how they access health information. The introduction of these tools has changed their group behaviour, shifting and decreasing the performance of other activities (exercise, meeting with friends outside, sleeping).

(c) Mesosystem. Although the initial model conceived within this context "interrelationships between elements of the microsystem," the adjustment made has focused on the analysis of the main lifestyle habits related to health, as specific elements or expressions of relationship in the health model analysed. The activities or health habits highlighted by teenagers are as follows: nutrition, activity and exercise, hygiene, sleep, sexuality, addictions and leisure time.

Nutrition (eating) is considered (together with exercise) the most important aspect of health. In the coding of the interviews, the family was mentioned the most. The participants related this concept with three others: body worship, sports and family. More specifically, the most mentioned aspects in relation to diet were maternal influence and weight loss (fatness and diets). Eating healthy foods and maintaining good habits are the two elements considered as a guarantee of a healthy body and, consequently, good health. However, the discourses and images reflect a rationalisation of what is viewed as healthy, leanness and what is right, "making more technical and medicalising" eating practices (analysing the calorie and mineral intake, etc.) and eliminating the pleasure linked to it (Vilhena Mascarenhas, 2012).

Along the same line, a constant contradiction is established, predominantly in the group of Spanish women in relation to what they understand as good dietary practices (eating 5 times a day, increasing the consumption of fruits and vegetables and reduce sweets) and the ideas of what the human body should be (girls must be thin and boys muscular). The latter being more important. Most of them recognise that they have unhealthy habits: not having breakfast, following diets that more stringent than necessary or not eating despite the information available to them and the family effort.

The *physical exercise and activity* is also the main source of health (more than 50% of the images presented made reference to food and exercise). Like many empirical studies, the participants identified inactivity and a sedentary lifestyle as one of the main problems responsible for the obesity pandemic (Cuenca-García, Ruíz Ruíz, Ortega Porcel, & Castillo, 2011). Equally, they also mentioned the positive role in establishing social relationships. It is perceived as positive for the modelling of their bodies and improving their self-image which is consistent with the study by Candel, Olmedilla & Blas (2008) who states that those who exercise have higher scores on self-concept scales, increasing self-esteem and decreasing anxiety and depression.

They make a clear distinction between the exercise performed as a sport and the physical exercise done in gyms, which is purely aimed at aesthetic considerations.

Leisure and free time cover a wide range of activities. It is understood as the time spent with peers, and in the case of the groups of Romanian origin, with the family. Meanwhile, the time spent on ICT and social media is increasing.

This time is considered to be one of the most important periods as it allows them to develop their main motivations and interests. Still, during the interviews they insisted on the lack of spaces to be able to fully develop them. In the case of the Spanish group they were more focused on the need for spaces for consumption and in the group of Romanian origin to be in contact with nature.

As discussed, this time has positive effects such as: the development of physical skills (sports, walks) and mental skills (relaxation, rest), enjoying activities and obtaining positive psychosocial and psychological gratification for their psychological state of mind (Salvador Llivina, 2009).

The family, particularly in the case of the Romanian population (women), is presented as a constraint factor to the development of some activities, as it is the system in charge of setting the rules. Leisure and free time were also associated with the emergence and development of addictions (Pons & Buelga, 2011).

The most prevalent *addictions* mentioned were alcohol and tobacco, being considered the most relevant social problems. When delving into the reasons associated with the consumption, participants link it to peer pressure, mainly driven by social identity issues (Moral Jiménez & Ovejero Bernal, 2004) being "cocky" and "cool". The consumption is associated with a rise of the status within the group.

Technophilia (addiction to technology) is considered to be a growing phenomenon. They recognise that abuse is harmful to health, and although none of them considered being addicted, they thought this problem was common among their friends and colleagues.

The consumption of other drugs is associated with poor academic performance; it is associated among their classmates to the group of "repeaters".

As for *hygiene,* two significant aspects were highlighted: (1) its importance in peer relations and adaptation within the group, poor hygiene is associated with immigration, discrimination and group marginalisation (The gipsy, Moroccan and sub-Saharan population is considered unhygienic by both groups from Almeria and Romania) (2) hygiene is associated with sexuality. Bad smell is linked to disease (hygienist vision) and a decrease in sexual attraction.

The negative influence that technology and social media have had on *sleep* is considered to be significant, decreasing the hours of sleep. This impacts on the state of focus and concentration at school. All the cultural groups stated that taking a nap was a healthy habit.

Sexuality remains a "taboo" subject that is avoided in conversations about health (the family was the least cited in the interviews and no photographs were presented in regards to this topic).

Romanian women explained how their mother's fear of rape and unwanted pregnancies involved a restriction on their ability to go out.

The Spanish groups highlighted as positive elements the ability to be able to address the topic openly with their peers and how social media helped to establish relationships. These two aspects suggest the existence of a "generational and digital gap."

(d) Exosystem: The neighbourhood, home, small city and its services as opposed to big cities, greenhouses conceived as workplaces and as part of their habitat, the educational system, the health system and the media were the environments mentioned that affect their health.

Research shows the importance attached to the type of urban or rural space where their life unfolds. In this regard, cultural differences are identified: the Romanian population expresses a preference for green and rural areas, whilst the Spanish group does not consider the habitat to be that important. Romanian participants stress the importance of vegetation and nature on health (which is not that prevalent in the province of Almeria). They also showed more awareness regarding environmental pollution and its impact on health.

Both groups mentioned as positive factors for health the following ones: sunny climate with high but not extreme temperatures that prevent common diseases such as colds; the sea and beach as a place for leisure and

enjoyment, relaxation and with water whose properties "prevent diseases".

They believe that green, leisure, culture and meeting places have effects that promote exercise and neighbourly contact; likewise, they bear in mind the bicycle as a means of transport. By contrast, they consider that construction, pollution and waste are three problems citizens face and threaten their respiratory and physical health. For the same reason, the conceive life in big cities as a harmful health aspect.

The health system adopts a very significant role in the representations of adolescent health. It is perceived as a necessary service. Differences between groups were observed: the Spanish women handed in around 40% of their pictures focusing on this topic. Images of hospitals, ambulances and pharmacies were recurrent. By contrast, Romanian women did not give much importance to these topics in their pictures (5%) or during interviews, showing preference for more natural remedies.

In regards to the educational system, they criticise its competitive and frustrating nature that gives rise to many stressful situations. However, they hardly establish a link between this system and health, reflecting a distance between these two areas.

They show a double approach in relation to the media (newspapers, television) as they are perceived as a resource with a potential regarding health, which could promote the health campaigns or other actions, but they also criticise its influence on the idea of perfect bodies and consider it increases addictions such as smoking with a clear negative influence.

(e)Macro-system: reflects the characteristics of the culture in a given historical and social moment. Undoubtedly, the most important aspect of Western society in the discourses of adolescent health by both immigrants and natives is body worship (being particularly important among Spanish women). This influence is perceived in areas such as food intake restrictions in order to lose weight and adjust to body ideas that have been imposed upon them. Women are the ones who mentioned diets the most. Vegetables and fruit are nutrition icons due to their low calorie content. Exercise is another way to worship the body, specifically gyms are structures in which physical activity is used as a vehicle for body slimming and modelling.

Other aspects refer to consumption as a way of life and leisure, although most state that the lack of consumer spaces in their localities limit their possibilities in this regard.

In the speeches some social values such as individualism, the idea of freedom in Western societies, religion (Christian-Orthodox), cultural patterns in Spain and Romania, the social working conditions (low job expectations); gender attitudes that perpetuate family roles and discriminatory attitudes towards immigration were also mentioned.

4. Conclusions

The results of this study show there is consistency in the four approaches presented in the study:

On the one hand, it shows how the **ecological** theoretical model allows a representation based on empirical studies of the interaction on health of different factors found at different levels depending on the type of influence they have on the lifestyles and health of adolescents.

It offers a particularly interesting possibility of applying this model to **the salutogenic** model facilitating the identification of the positive resources of the environment and the relation they have with adolescents.

It introduces a qualitative analysis from an **intersectional perspective**, analysing the speeches according to the intersection of variables such as gender and origin. It is recommended in future research to study in greater depth the importance of social class because although this aspect was not thoroughly examined throughout the investigation, differences in lifestyles between those participants whose parents are business owners versus those whose parents are employees were perceived.

Finally, it lays a conceptual foundation from which future **transcultural** research may be conducted as it allows to include common environmental elements and identify differences in the way in which they may affect, influence or may be valued.

References

Baker, T. A., & Wang, C. C. (2006). Photovoice: Use of a Participatory Action Research Method to Explore the Chronic Pain Experience in Older Adults. *Qualitative Health Research, 16*(10), 1405-1413.

Bronfenbrenner, U. (1987). *La ecología del desarrollo humano.* Barcelona: Paidós.

Candel Campillo, N., Olmedilla Zafra, A., & Blas Redondo, A. (2008). Relaciones entre la práctica de la actividad física y el autoconcepto. La ansiedad y la depresión en chicas adolescentes. *Cuadernos de Psicología del Deporte*, 61-71.

Castleden, H., Garvin, T., & First Nation, H.-a.-a. (2008). Modifying Photovoice for community-based participatory Indigenous research. *Social Science & Medicine, 66*, 1393-1405.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory.* Thousand Oaks, California : Sage Publications.

Cuenca-García, M., Ruíz Ruíz, J., Ortega Porcel, F. B., & Castillo, M. J. (2011). Actividad física en niños y adolescentes. En J. A. Casajús, & G. Vicente-Rodríguez, *Ejercicio físico y salud en poblaciones especiales.Exernel* (págs. 123-146). Madrid: Consejo Superior de deportes.

Deleuze, G. (2002). *Empirismo y subjetividad.* Gedisa: Barcelona.

Esteban, M., & Ratner, C. (2010). Historia, conceptos fundacionales y perspectivas contemporáneas en psicología cultural. *Revista de historia de la psicología*, 117-136.

Hernández-Girón, C., Orozco-Núñez, E., & Arredondo-López, A. (2012). Modelos conceptuales y paradigmas en salud pública. *Revista de salud pública, 14*(2), 315-324.

Herrero Yuste, N. (2003). Adolescencia, grupo de iguales, consumo de drogas y otras conductas problemáticas. *Estudios de Juventud, 62*(03), 81-91.

Lalonde, M. (1974). *A new perspective on the health of the canadians.* Office of the Canadian Minister of National Health and Welfare.

Moral Jiménez, M. V., & Ovejero Bernal, A. (2004). Actitudes ante el consumo de sustancias psicoactivas y mentalidades del usuario en adolescentes de secundaria. *UNED Oviedo*, 1-27.

Pons, J., & Buelga, S. (2011). Factores Asociados al Consumo Juvenil de Alcohol: Una revisión desde una Perspectiva Psicosocial y Ecológica. *Psychosocial Intervention, 20*(1), 75-94.

Rivera, F., Ramos, P., Moreno, C., & Hernán, M. (2011). Análisis del modelo salutogénico en España: Aplicación en la salud pública e implicaciones para el modelo de activos en salud. *Salud Pública*, 129-139.

Salvador Llivina, T. (2009). *Adolescentes y jóvenes: ocio y uso del tiempo libre en España.* Madrid: Delegación del gobierno para el plan nacional sobre drogas.

Shaffer, R. (1983). *Beyond the dispensary.* Nairobi: African Medical and Research Foundation.

Torrico , E., Santín, C., Andrés, M., Menéndez, S., & López, M. (2002). El modelo ecológico de Bronfrenbrenner como marco teórico de la Psicooncología. *Analesde psicología*, 45-59.

Vilhena Mascarenhas, P. (2012). Alimentación y dietéticaen los procesos de subjetivación. En M. Gracia Arnaiz, *Alimentación, salud y cultura: encuentros interdisciplinares* (págs. 103-121). Tarragona: Universitat Rovira y Virgili.