

Vitamina N
RECETAR NATURALEZA ES RECETAR VIDA



**Measuring the impact of nature on
visitors of a protected area:
Case of the Otún Quimbaya Fauna and
Flora Sanctuary - Pereira (Risaralda)**

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Abstract

A review of the studies that have been conducted in recent years on the benefits of conscious contact with nature for the attainment of well-being, offers ample evidence that people who practice outdoor activities on a regular basis, interacting with the nature of consciously, they perceive an improvement in their quality of life. This has to do with which the conscious interaction with nature invites the realization of activities that contribute to the individual and social welfare. First, with respect to individual welfare, it has been shown that people who decide to perform outdoor activities have significant improvements in the cardiovascular system and pulmonary disease, as well as improvements in chronic diseases such as diabetes and hypertension. On the other hand, it contributes to social welfare to the extent that it helps reduce stress and invite cooperation and teamwork.

These studies serve as a basis for the design of the exercise carried out by the Colombian Heart Foundation in the company of National Natural Parks of Colombia, whose purpose was to study the impact of the contact conscious with nature about the well-being perceived by the visitors of the Otun Quimbaya FFS. Surveys were applied to the entrance and departure of the tour, aimed at examining the way in which visitors perceived the impact that exposure to nature and the realization of activities had on the open air about your well-being.

The results obtained show that 1) people know the benefits that outdoor activities bring about their well-being, however 2) the Sanctuary visitors affirm that, despite knowing the benefits, they do activities that involve conscious contact with nature and 3) at the end of the travel, respondents claimed to perceive an improvement in their well-being. These conclusions obtained from the surveys, and the wide variety of studies that

demonstrate the positive impact of well-being on nature, allow us to affirm that it is necessary to delve into the study of the benefits that activities have in natural spaces for people, besides promoting the wide offer of the Colombian territory in terms of natural parks and landscapes of the which feed the quality of life of people.



Introduction:

We have reached a point in the history of humanity where it becomes necessary to rethink the ways in which the relationship of human beings has occurred with the environment and among ourselves. The consequences of the impact that human activity has had on ecosystems, and the way in which these transformations affect social interactions and the relationship with the own body. Despite this, only recently has it been identified as a problem of research, both for social and human sciences, and for medicine and psychology, the relationship between contact with open natural spaces and well-being.

A bibliographical review around the main studies that have focused in the search for evidence about this relationship allows us to conclude that it is not enough to deepen on the investigation of the impact of open natural spaces welfare, it is also essential to collect evidence that make it possible to identify in what way the potential of the nature about the human body and its social relationships.

To begin to address the relationship between obtaining well-being and conscious contact with nature, first, it is necessary to understand that this approach on health resurges in the academic field, after a long period in which the medicine focused on the study of the body and the treatment of the disease, leaving aside the analysis of the environmental conditions that lead to it.

Also, it appears again as a research issue within the framework of a change of consciousness that manifests itself in the transformation of the perception that have the people of the environment, related to the exhaustion of natural resources and the densification of the population (mainly in urban centers), which they have perceptible consequences for human beings.

At present, it is commonly understood as a linear process of cumulative growth, which the Royal Academy of the Spanish Language (RAE) defines

as the “evolution of an economy towards better living standards”. This conceptualization arises as a response to a specific economic model that tends to prioritize the need to focus the vital time in guaranteeing conditions necessary for the operation and maintenance of the economic,



political and social systems, approaching them as independent systems and denying (or at least omitting) the obvious and perceptible systemic interrelation between that systems, with the cultural, moral, and bodily systems, and the relationship unbreakable of containment of all with the natural system.

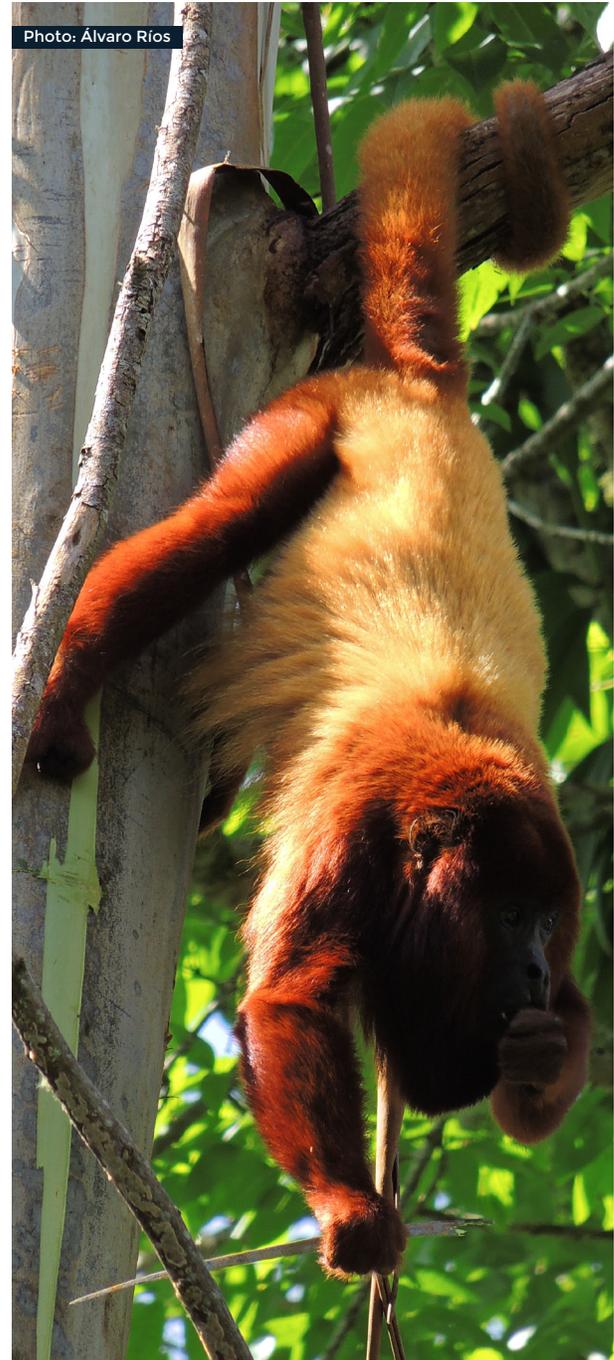
Despite this, the 21st Century continues demanding the theorists of the social, natural and exact sciences; think again the way we approach to observe the different phenomena corresponding to each system and its relationship with the others. Climate change and the increasing interdisciplinary between the fields of knowledge have led to seek to integrate existing analytical frameworks, concepts and variables that until recently, they were believed to be disconnected.

Talcott Parsons, proposes understanding the social system as “a plurality of interacting people,

motivated by gratification, and their relationships with their situations are defined and mediated in terms of a subsystem of symbols culturally structured and shared “and” in this sense, the interaction of the individual actors takes place under such conditions that it is possible to consider this process of interaction as a system (in the scientific sense) and submit it to the same order of theoretical analysis that has been applied with success to other types of systems in other sciences “(1).

Applying this methodology, and observing the macro systems that interact for give life to the social system is identified: a body system (understood as the set of parts that make up a living being), the political, economic and culture, which make up the relationship environment and offer the conditions to meet the different needs of the body system, and a natural system that provides the physical environment and the material conditions necessary for the development of life. By visualizing the interaction of these systems the first thing that is identified is a relationship of containment between the natural system and all the rest. This suggests that any search for quality improvement of life is necessarily linked to a correct relationship with the natural system, both individually and socially and culturally.

The modern Western worldview has prioritized an approximation of the relationship of human beings with nature that starts from the materialism proper to the consumer society, constantly forgetting that, from an analytical framework systemic, such as Parsons’s propose, any damage done to the nature will be reflected in changes that are detrimental to other systems and, on the contrary, a harmonious relationship between the systems will provide the balance necessary for its operation.



1. Quality of life, health and well-being:

According to the World Health Organization, health is defined as a state of physical, mental and social well-being, with the ability to function, and not only as absence of disease (2). In this sense, he adds that the relationship between health and disease is not dichotomous, since different degrees can be identified affecting one or the other, where the individual moves on a health axis disease, as it strengthens or breaks the balance. However, the personal idea of one's health is subjective and difficult to compare with other people, leading many to end up accepting chronic ailments as normal, hindering the early identification of symptoms for timely treatment, presenting an important challenge for government entities and not governmental organizations in the design of promotion and prevention programs. (2)

It is understood, in general terms, that physical health is the functional capacity of the different organic body systems depending on strength, resistance, agility, flexibility, coordination and skill; mental health is the state of emotional balance, or the absence of mental illness; and social health as the right relationship with the other members of a community. (2)

Health is only one of the factors or conditions necessary to achieve the welfare, this being a state that also depends on the guarantee of personal security, the freedom to choose and act, healthy social relationships and enough material conditions to live. However, having understood that the body system is the driver that allows the creation of connections between other systems (except the natural one, which contains the others), then, the health is the fundamental pillar to start looking for the balance that allows a relationship sustainable among all the systems that make up the social system. Health by so much is not considered as an end to be reached in

human life, but as a condition of life necessary for the development of individual possibilities, social and productive: a resource of vital importance for the quality of life of an individual or society. (2)

However, the quality of life is defined by WHO as "individual's perception of their position in life in the context of their culture and value systems in which they live and in relation to their goals, expectations, standards and concerns." Understood in this way, the quality of life depends on the level of consciousness of the person on the effects that ecosystem services can have on the satisfaction of your needs. That is, regardless of the quantity or quality of the services ecosystems, the quality of life is a matter of perception and opportunity.



2. Well-being and conscious contact with nature:

So far the term “natural system” has referred to a complex network of relationships between the components that make the operation of the ecosystem. However, to refer specifically to the relationship that the correct functioning of the natural system and human well-being, we must do two initial clarifications:

First, it is important to bear in mind that the effect of nature on the quality of life requires a person’s level of awareness about what they are looking for in ecosystem services focus on meeting the physical, mental or social needs required to acquire higher levels of well-being. Salvador Rueda (3), in his text “Habitabilidad y calidad de vida “, citing Levi and Anderson (1980) saying that “an objective high level of life (either by economic resources, habitat, care level or free time), may be accompanied of a high index of individual satisfaction, well-being or quality of life. But this concordance is not biunivocal “. For the authors cited by Rueda, “above a minimum standard of living, the determinant of individual quality of life is the adjustment or the coincidence between the characteristics of the situation (of existence and opportunities) and the expectations, capabilities and needs of the individual, such and as he perceives them “(4)

The second has to do with the definition of “nature”. Clayton and Myers classified it into four (4) categories: 1) domestic nature, which refers to the indoor plants and pets, 2) nearby nature, referring to parks, gardens and urban nature, 3) controlled nature, such as zoos, lakes, urban parks, and 4) wild nature, present in remote areas such as oceans and forests (5). Each one of these categories of natural spaces offer differential ecosystem services, which are related to a greater or lesser extent with the achievement of well-being.

In addition to these, there are also natural protected areas, which are protected spaces by a specific

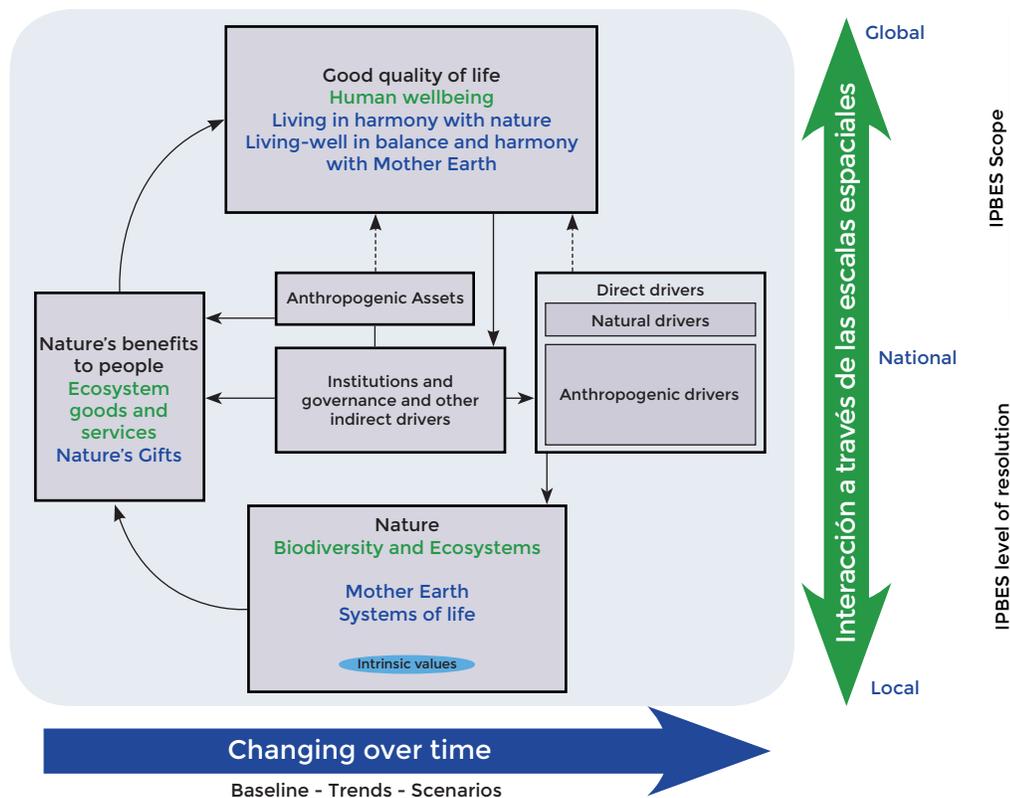
legal framework, and to which they are assigned institutions responsible for ensuring the conservation of biodiversity and specific geomorphological features that make this “a delimited geographical space, which has been designated, regulated and administered for the achievement of a conservation goal “(6). In Colombia, Parques Nacionales Naturales de Colombia (PARQUES), is the entity in charge of ensuring the protection and conservation of these areas, but also of the design of citizen pedagogy plans to promote sustainable tourism that mobilizes consciousness in front of to the importance of environmental conservation.

Since 2018, PARQUES together with the Colombian Hearth Foundation, design the Vitamin N project: a strategy for the heart, which aims to encourage people to care for and connect with nature, under the understanding of the benefits that such contact has for your physical, mental and social health. Vitamin N is a term coined by PARQUES and the Colombian Hearth Foundation, which includes the strategy aimed at care of life from conscious contact with nature, as a new way of understanding health from an approach that starts with the promotion of care as a way of life. This approach is part of the pedagogical strategy created by the Colombian Heart Foundation called Responsible Hearts that promulgates Method 10 as a lifestyle that includes: culture of the movement, the culture of learning to eat, the culture of smoke-free spaces, the culture of acts with woman’s heart, the culture of positive thinking, the culture of full consciousness, the culture of vitamin N, the culture of care in holidays, the culture of the numbers of the heart and the culture of healthy organizations.

3. Nature’s contributions for people and their relationship with the achievement of well-being:

As mentioned, to obtain well-being from the services that ecosystems naturally offer, it is necessary to know how to identify what benefits offers each, but it is also essential to know to what extent the services offered and obtained contribute to the physical, mental or social well-being of people. In figure 1, made by the IPBES (The Intergovernmental Science - Policy Platform on Biodiversity and Ecosystem Services) (7), you can “identify the six interrelated elements that constitute a socio-ecological system that works on various temporal and spatial scales: benefits of nature for people, anthropogenic resources, direct drivers of change and good quality of life.” You can observe the main elements and relationships for the conservation and sustainable use of biological diversity and services of ecosystems, human welfare and sustainable development.

Graph 1. Conceptual framework of the Intergovernmental Scientific-normative Platform on Biological Diversity and Ecosystem Services.



Source: IPBES Decision - 2/4

A general conclusion of the IPBES conceptual framework is the intricate relationship and interaction between people and / or human societies and the natural world, where changes in the social system directly affect indirectly to ecosystems and, at the same time, these changes in the ecosystems transform the conditions of possibility for the social system.

Several authors have demonstrated the different impacts that green spaces have on the well-being of people. The increase in the disposition of urban green spaces has decreased the mortality of residents of 35 years in Ontario (Canada). (8) Also, increased physical activity among adults and children under 6 years (9) (10). Contributes to improving mental health in adults residing in Wisconsin (USA), Adelaide (Australia) and England. (11-13). In turn, Kuo (14) states that being surrounded by nature, or provide green spaces in cities, decreases levels of crime and violence, strengthens community ties, improves health and strengthens capacities for resilience and individual and social well-being.

Kuo, also makes a compilation of the main studies that prove the known and measurable effects of chemical and biological agents present in the natural spaces about health. For example, mention that many plants release phytoncites (organic antimicrobial compounds) that reduce blood pressure, alter autonomic activity and activate immune function, among others "(15). Also in the air there are agents that have effects about reducing anxiety like negative ions present in mountainous areas (16), and other microorganisms that activate the immune system as the *Microbacterium Vaccae* (17).

Natural sounds and landscapes have also shown an effect on the Health. For example, a study conducted in a Pennsylvania hospital between the years 1971 and 1981 showed that patients with rooms with windows directed towards natural spaces recovered faster from surgeries (18).

On the other hand, as mentioned above, the lifestyle provided by the cities generate conditions that also have detrimental effects on health. For example, air pollution causes inflammation of the myocardium and respiratory conditions that end up affecting the cardiovascular system (19). Also, the stress generated by the city due to the high temperatures produced by the asphalt, the perception of insecurity and the respiratory stress generated by smog, affect the physical and mental health of people (20).

In addition to these effects that have to do with physical and mental health, the lack of contact with nature "has negative consequences of various kinds: deficit of attention and hyperactivity, lack of creativity and curiosity, natural illiteracy, of connection and identity with the environment, individualism and little sense of community (21).



4. Vitamin N for a healthy childhood: evidence about the positive influence of conscious contact with nature in boys and girls

As stated above, contact with nature brings different benefits for physical, mental and emotional health. This is also true for boys and girls, who also present differential benefits for being in the stage of cognitive and motor development, and in the acquisition of social and emotional skills.

The report issued by the *Natural Learning Initiative* in 2012, provides a compilation of the main effects on well-being, of the contact of children with nature (22). It mentions that:

- Helps to promote creativity and problem solving.
- Power cognitive abilities.
- Improves academic performance.
- Reduces the symptoms of Attention Deficit Disorder.
- Increase physical activity.
- Improves nutrition.
- Improves the view.
- Improves social relationships.
- Improves self-discipline.
- Reduces stress.

For his part, Richard Louv introduces the term “nature-deficit disorder” (23) to mention the effects on the well-being of children that have had the process of urbanization and the separation of nature, that the modern lifestyle has tax on the life of people.

Although the “nature deficit disorder” is a term far from being considered a medical term, it is an effort of the author to offer a comprehensive panorama that considers the physical and psychological consequences and the dangerous social costs of parenting a childhood that doesn't know the nature and performs its recreational activities only in closed spaces.

In an article published in *Psychology Today*, the author refers to “Recreation Participation Report”, a study conducted biannually at around sixty thousand North Americans with the support of different NGOs that promote health and sport, which showed that children between 6 and 17 years old perform every time less outdoor activities, and those between 6 and 12 prefer to recreate outdoors (24). In 2017, only 14% of children between 6 and 12 years did outdoor activities, while only 10% of those between 12 and 17 did (25). Louv says it is concerned about the low participation of people in general in outdoor activities, but it is even more so than the population that is particularly affected is also the most private of the benefits of conscious contact with nature, that is children.



5. Well-being

The term well-being began to be defined in the 1980s as an integrating concept related to attributes of the life of individuals, determined by objective and subjective aspects (26). Well-being has generated numerous and varied studies in recent years (27), some of them related to the concept of positive health.

Subjective well-being is based on what people think and feel about their life and environment and the conclusions they make when they evaluate their way of life. It is what is called "happiness" and is expressed in more emotions pleasant and few unpleasant or when individuals are part of interesting activities and feel satisfied with their lives. (28).

Positive health began to be used from the movement of positive psychology (29) and that relationship produced many instruments aimed at measuring aspects related to well-being, satisfaction with life, emotional well-being, psychological strengths or positive emotions (30, 31, 32).

But it is not about simply expanding definitions of health or incorporating positive factors associated with health, but rather those studies put manifested that positive psychological states are an integral part of the health and that may have an influence on the decrease in health, in its preservation or in the processes of control of risk factors or recovery of lost health.

In this sense, having a good state of physical and mental health is not only absence of diseases or disorders, it also have capabilities that make it possible to face adversity (33).

Studies have concluded that positive states of mind can lead not only to a full life, it also add conditions for a life healthy (34).

The association between well-being and positive health allows us to conclude, on the basis of the mentioned studies, that well-being has important effects in psychological satisfaction and it has notorious and significant implications for physical health. In this sense, well-being or the perception of well-being seems to promote health from different routes.

The convergence between welfare and health, then leads us to convergence nature - well-being -health. Promoting well-being, impact on health and promoting contact with nature promotes well-being because conscious contact with nature favors positive emotions.

Promoting well-being becomes a desirable goal at the social and political level (35).

The curious thing about these conclusions is that it is strange to find programs preventive measures that seek to encourage, promote and stimulate contact with nature and well-being as vital healthy elements.

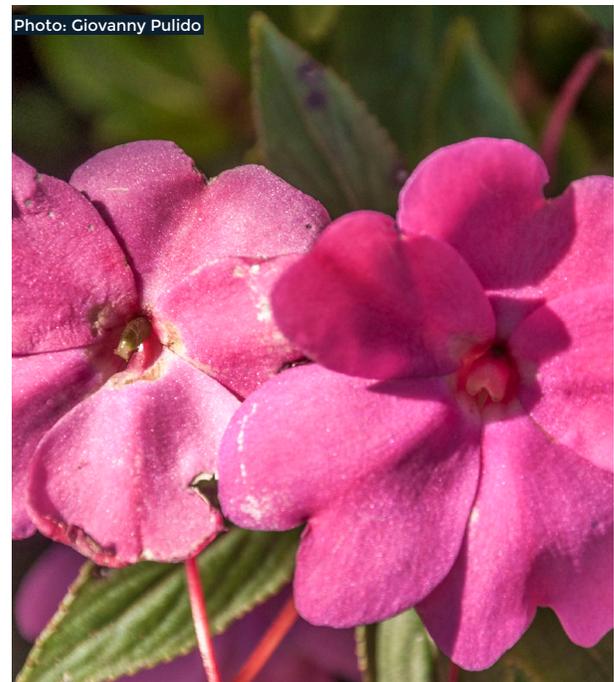


Photo: Juan Carlos Santacruz



6. Methodology applied in the survey in Otún-Quimbaya

The specific question is if conscious contact with the natural environment has effects on subjective well-being and psychological well-being, establishing conditions of perception about the care of people in their relationship with the natural environment.

6.1. Study area

The Otún Quimbaya Fauna and Flora Sanctuary is one of the 59 protected areas of the National Natural Parks System of Colombia, it is located on the western flank of the Cordillera Central in the department of Risaralda, more exactly on the left slope of the middle basin of the Otún River, corregimiento of La Florida in Pereira (Risaralda). The FFS Otún Quimbaya refuges a transition zone between the Sub-Andean Forest and the Andean Forest, in the same way it is part together with the Regional Park Natural Ukumari of the buffer zone of the National Natural Park Los Nevados, contributing to the conservation of the sub-Andean forest strip of east of Risaralda to Tolima. (37).



6.2. Entry questionnaire - Perception records

In order to generate a record of the perception of the impact of the nature in people's lives, two perception surveys were designed and applied to visitors of the "Otún Quimbaya Flora and Fauna Sanctuary" enter and leave, in the months of December 2018 and January 2019.

The entry questionnaire had 12 variables or items (Annex No. 1), and the other questionnaire used the Scale for Mood Assessment, validated for 20 years in several countries, to measure transient moods in Studies that use mood induction procedures (PIEAs). (Annex No. 2).

6.3 Results

Between the months of December 2018 and January 2019, 92 surveys were applied in the Otún Quimbaya FFS, in order to identify the evidence of the impact of the nature in the well-being of people, mostly answered by women (80%), aged between 22 and 41 years old, from the Department of Risaralda (81%).

In the entrance survey, 84% of the surveyed population indicates that it is very important contact with nature and 91% indicates that they know about the benefits of being in contact with nature. In the same way, they point in order of priority that improves my mood and relaxes me, as the main benefits that you think you get by being in contact in nature (Figure 1).

Figure 1. Priority order of the benefits you think you can get from nature

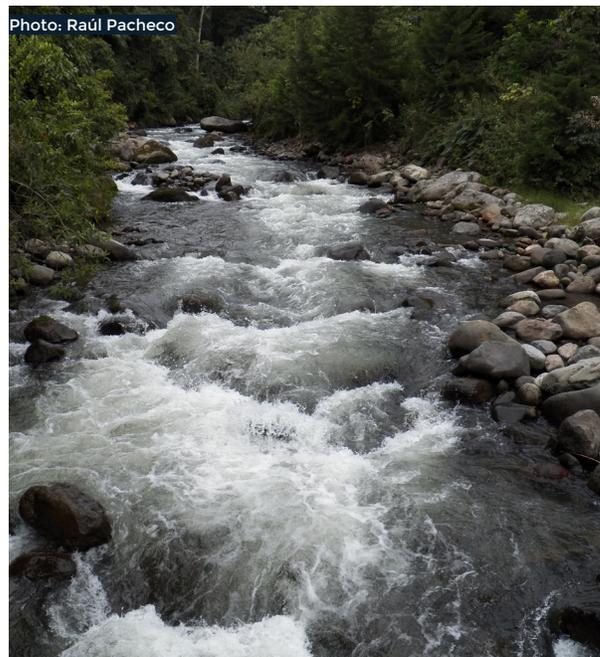
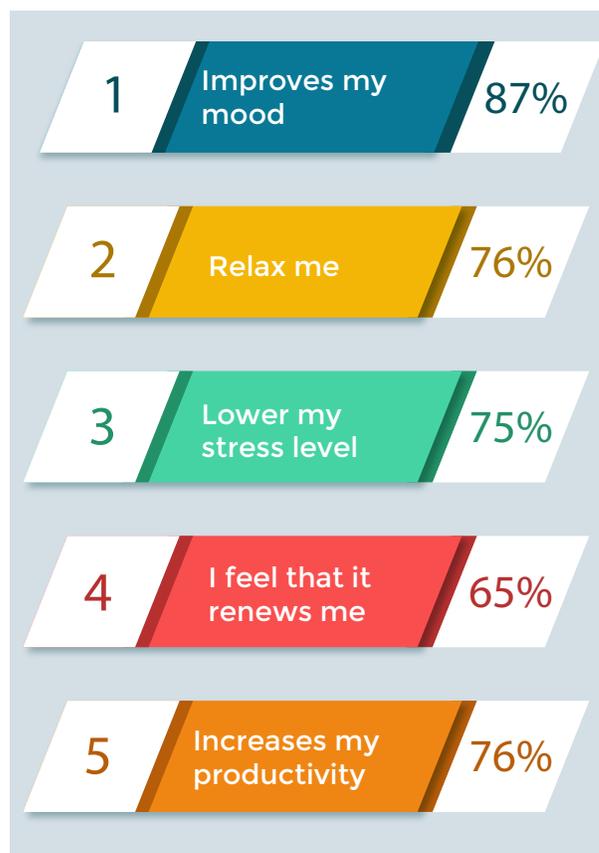
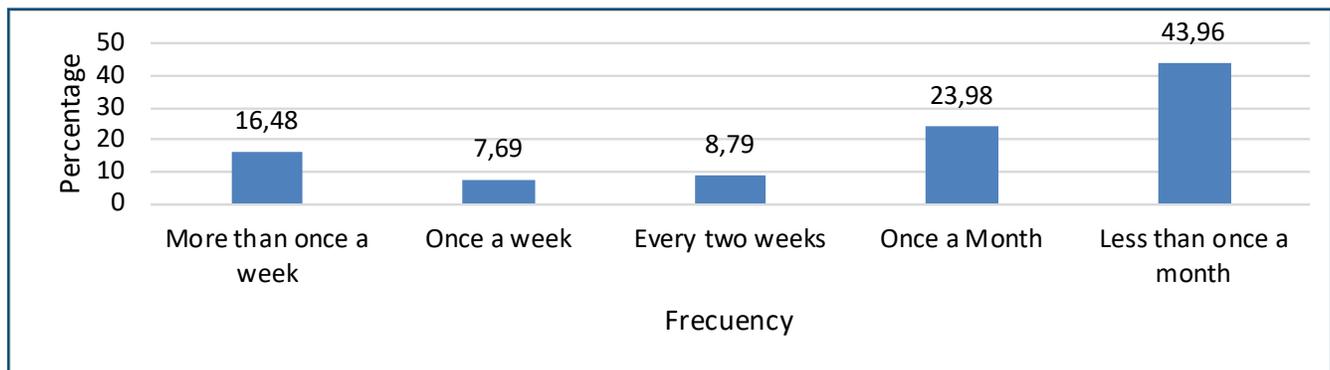


Photo: Raúl Pacheco

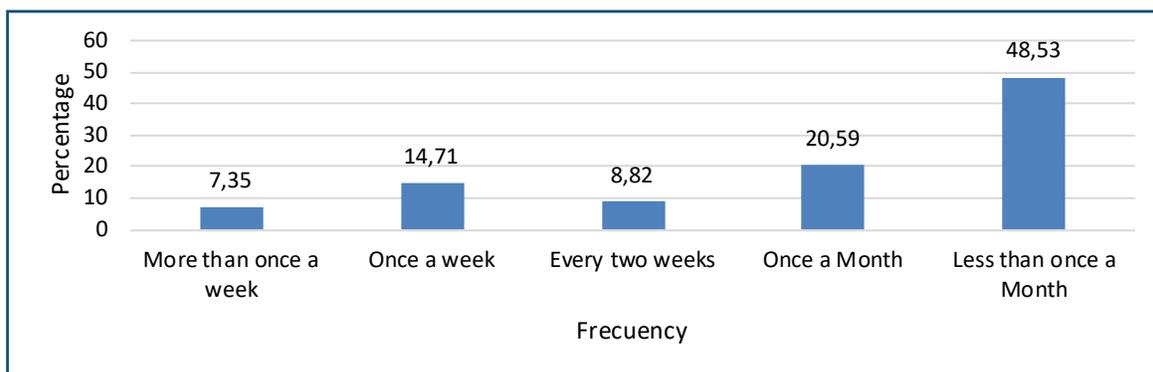
When asked about the frequency with which they has direct contact with the nature, 43.96% ensure that they only have contact less than once a month, and 16.48% more than once a week. (Figure 2).

Figure 2. Frequency of contact with nature



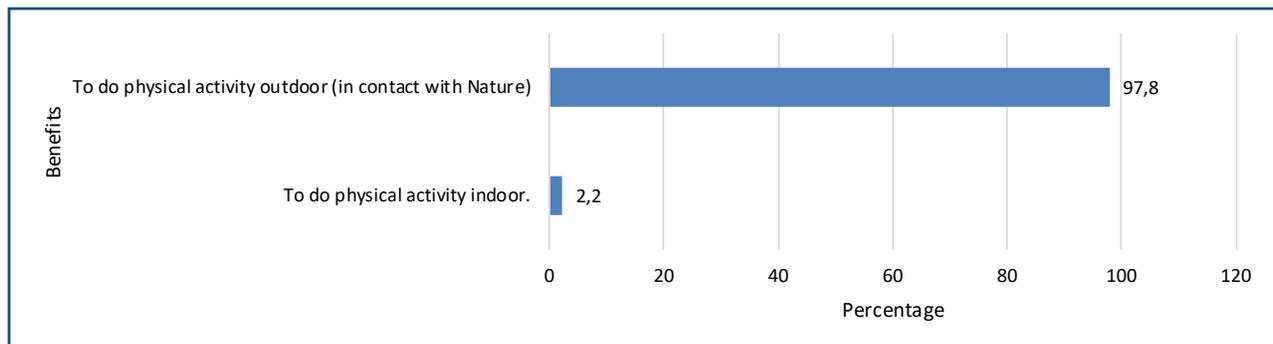
In the case of children, 48.53% parents ensure that their children are in contact with the nature less than once a month, and 20.6% ensure that once a month (Figure 3)

Figure 3. Frequency of children in contact with nature



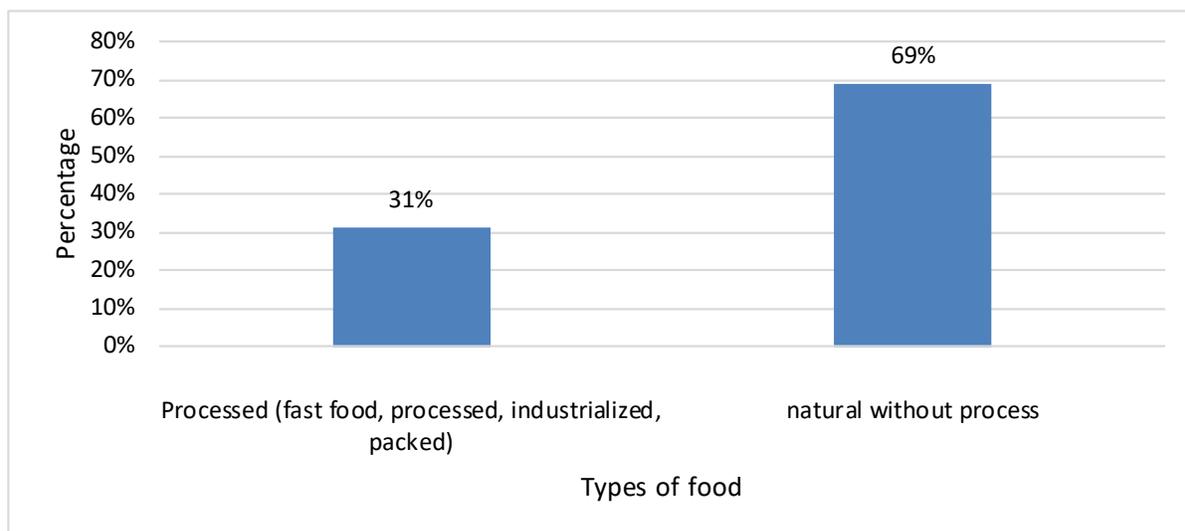
However, in the question what they considered most beneficial, the majority responded: doing physical activity in a natural environment (98%), compared to a closed space (2%). (Figure 4)

Figure 4. Answer to the question that you consider most beneficial



Regarding food, 69% of the respondents chose natural food without process and 31% processed food. (Figure 5)

Figure 5. Percentage of choices in the type of food



In relation to the question ¿with which of the following statements are you identified? (Figure 6), 51% identified themselves with all and 27% with which they consider that the nature is a source of inspiration that moves away from routines.

Figure 6. Percentage of affinity with affirmations

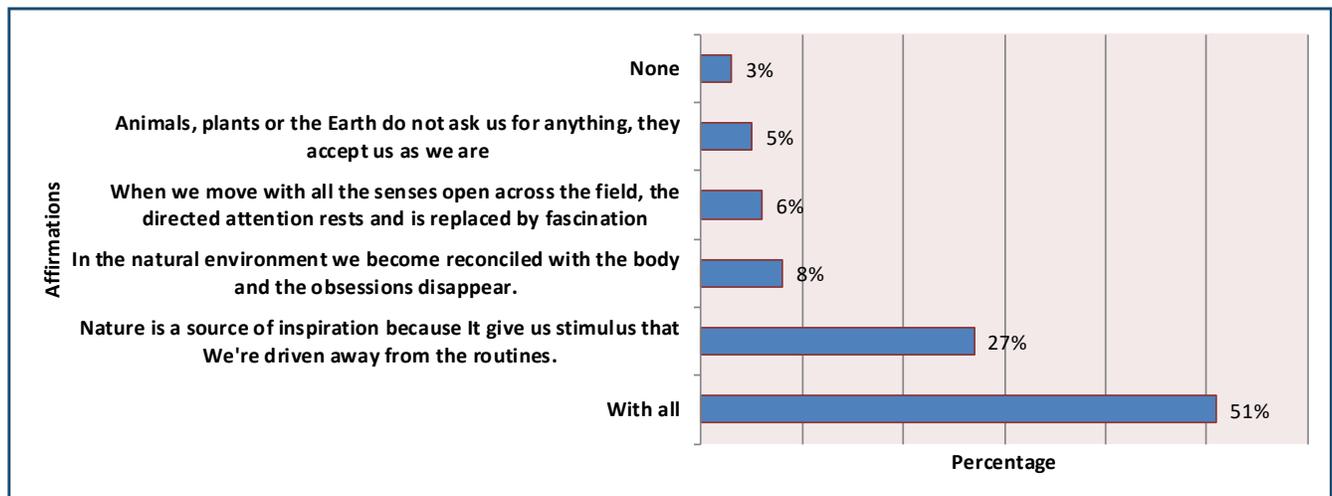


Photo: Diego Monsalve



The answer to the question about what activities “You have already done” to enjoy the nature, 73% stated that they have observed the mountains, followed by 72% that he has breathed deep in a natural environment and has smelled the aroma of the countryside. Being asked about what activities he would like to do to enjoy nature, the 55% said they would like to eat more natural products, 48% do physical activity in the natural environment and 43% visit a National Natural Park. In smaller percentage, respondents would not like to look after a pet (15%) or roll through the meadow (6%). (Figure 7).

Figure 7. Percentages of willingness to enjoy nature

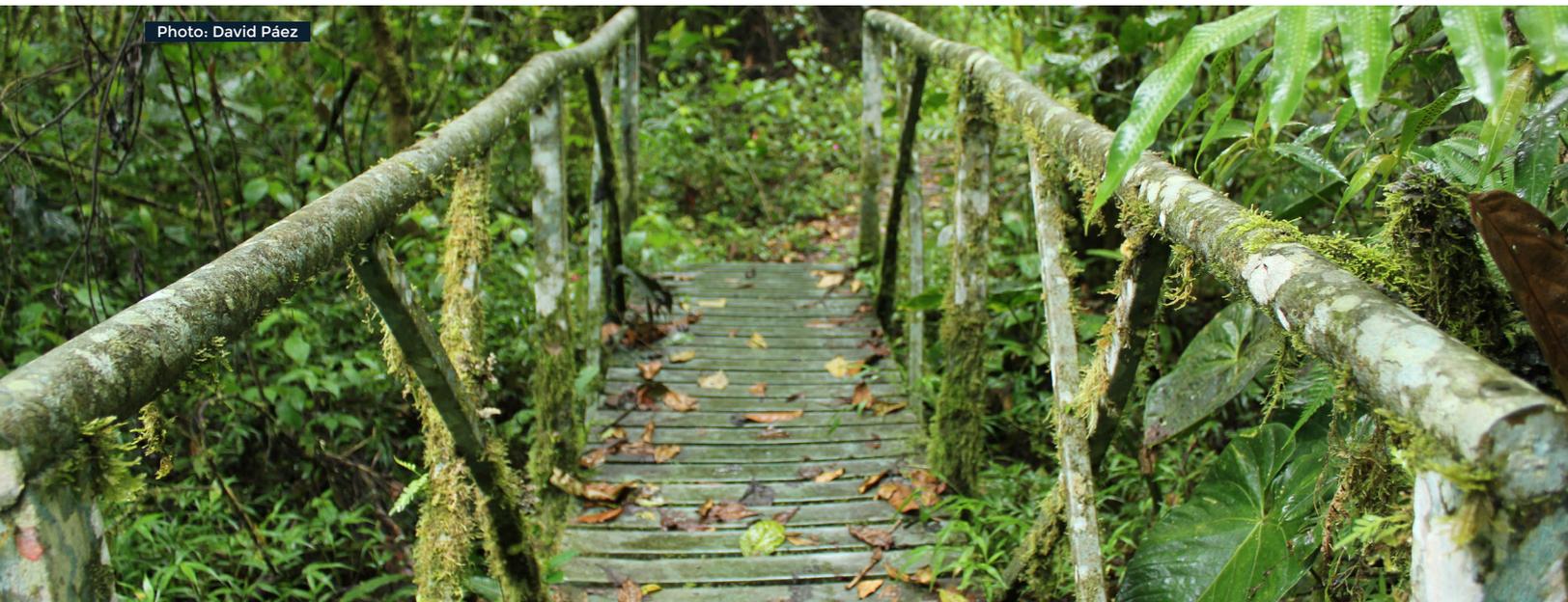
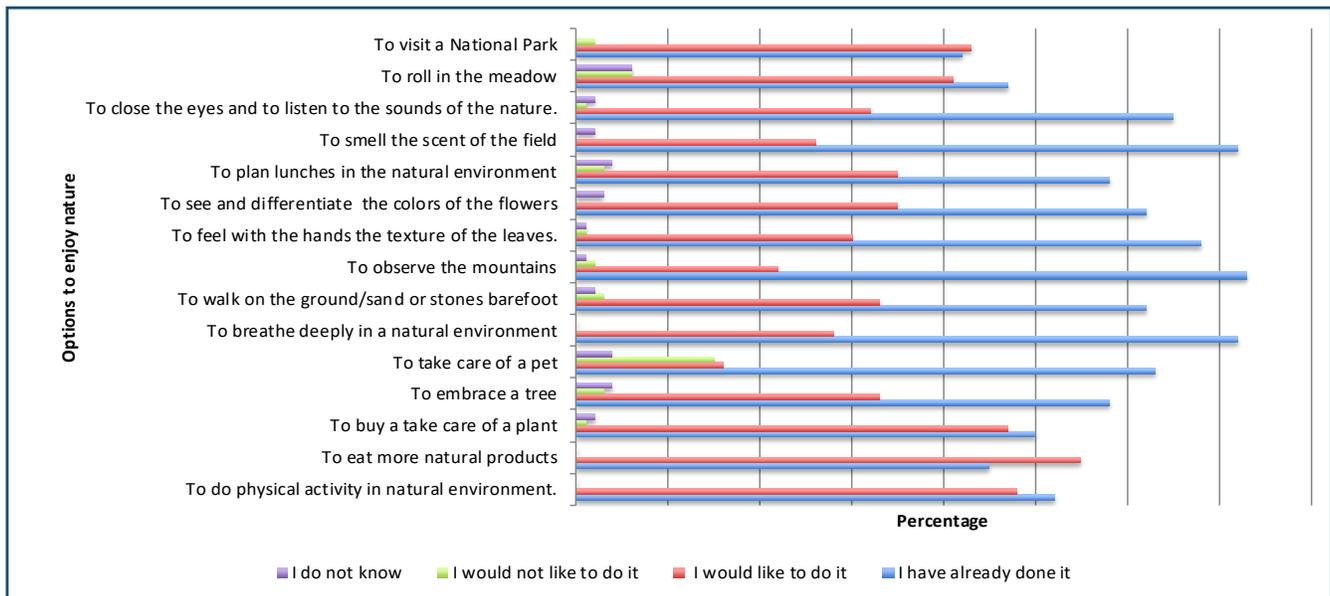
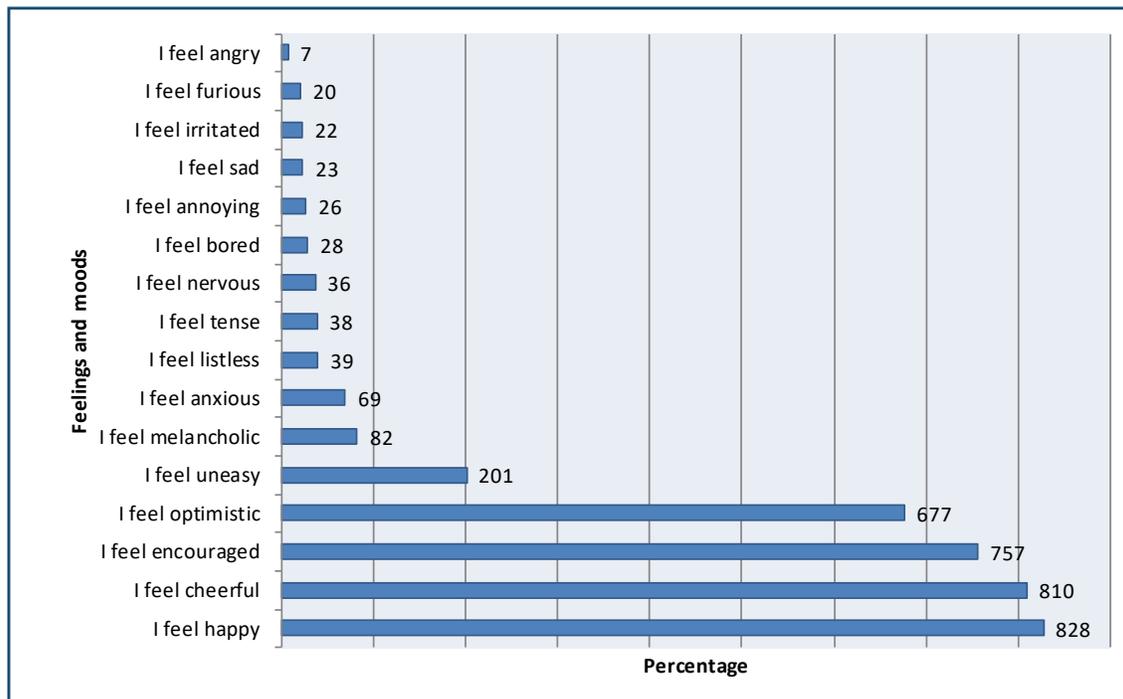


Photo: David Páez

The result of the questionnaire applied at the exit of the Park, which was the Scale for Mood Assessment, which qualifies moods from 0 to 10, it identified a higher score, adding all the numbers of each state of mood, for the mood with the adjective happy (828), followed by I feel cheerful (810) and I feel encouraged (757). (Figure 8)

Figure 8. Scoring phrases that describe different kinds of feelings and moods after visiting the SFF Otún Quimbaya



6.4. Discussion

The results show that in general terms the visitors to Otún Quimbaya FFS have knowledge and they aren't indifferent to the importance and benefits of being in contact with nature, they value significantly perform physical activity in natural environments, they have a very high level of awareness high in front of their choices of natural foods and consider that nature is a source of inspiration. However, they don't have regular contact with nature; which also applies to children since more than 50% of them do not play frequently in nature; because adults are responsible for instilling in children this kind of behaviors.

However, visitors to Otún Quimbaya FFS have carried out sensory activities with nature as observing the mountains, smelling the aroma of the countryside, breathing deeply in a natural environment and feeling with the hands the texture of the leaves.

Likewise, the Scale for Mood Assessment identifies that positive and joyful feelings are the most relevant after contact with nature and that the feelings of anxiety, depression or hostility occupy a very low degree in mood of those who had a natural contact with the natural environment offered by the SFF Otún Quimbaya.

7. Conclusions

We have created a model of production and consumption that systematically deteriorates ecosystems, making it difficult for them to offer ecosystems services necessary for human well-being. This lifestyle, which has priority asphalt over natural spaces, has shown to have detrimental effects on well-being which, understood in a broad sense, implies of the satisfaction of conditions that have to do with health, but also with psychological and social factors.

It has been shown that, in recent years, the tendency to prefer indoor activities in front of outdoor activities; a phenomenon that is especially notorious in boys and girls. This situation is worrying because in addition to the detrimental effects on health, the unconsciousness that is gestating in the new generations in the face of the need to interact harmoniously with nature and its effect on physical, mental and social well-being.

In the same way, it has been demonstrated through different medical studies that participating in outdoor activities has beneficial effects on the respiratory and cardiovascular system; it also shows improvement in patients with chronic conditions such as diabetes, and in psychiatric conditions such as Attention Deficit Disorder and depression.

With the application of the two surveys, relevant information on the importance of contact with nature for a better quality of life. By tabulating and graphing the responses of visitors to the Otún Quimbaya Flora and Fauna Sanctuary, it is evident that most people know that the contact with nature has several benefits, as they recognized it as very important, it also relaxes them and improves their mood. However, despite that the visitors recognized the importance of contact with nature, the answers to the questionnaire showed that the frequency with which they are in a natural environment is low, it shows a

clear contradiction between the identification of benefits and the decision to go out and obtain them.

To demonstrate the above, it is enough to analyze the Scale for Mood Assessment, applied to the exit of the park, as many of the visitors at the entrance indicated that they knew the benefits of nature, but they didn't apply them and after doing the tour of the park and having this conscious contact with nature their feelings were positive and optimistic.

With the application of this evaluation, it is shown that the great importance of the contact with nature in the quality of life of people. It is important continue to encourage visits to PARKS and other natural environments especially in cities, to ensure the impact of Vitamin N on Colombian's health to prevent and control risk factors and Chronic diseases that today are the most important public health challenge.



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