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ANALYSIS AND INTERVENTION OF STUDENT KNOWLEDGE OF NUTRITION AND SEXUALITY AT A PENAL INSTITUTION

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Abstract. *Studies related to the habits of students of Nutrition and Sexuality show the existence of inaccurate knowledge that leads them to adopting unhealthy lifestyles. The team of teachers at a Penal Institution in Spain diagnosed this aforementioned lifestyle was becoming a reality in their students aged between 18 and 47. The aim of this research was to analyse and improve the Nutritional and Sexual knowledge of these students. The students' level of knowledge was detected through a pre-test and post-test that were quantitatively designed and analysed according to four variables (studies, gender, age and body mass index). In order to improve their knowledge, an educational intervention was conducted and was quantitatively and qualitatively analysed according to six categories: change or improvement in sexual knowledge, change or improvement in nutritional knowledge, affective factors, the learning process, evaluation and methodology. The results show conceptual differences according to the four variables and that the intervention contributes to a conceptual change or improvement thanks to the activities and resources used. The implication of this research is to reveal the importance of analysing students' knowledge so as to improve the quality of the teaching/learning process.*

Key words: *nutritional education, penal institution, previous knowledge, sexual education.*

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Introduction

Scientists who have studied sexual and nutritional behaviour have shown the importance of Education in this field related to people. Those who have received scientific, truthful and reliable information about Sexuality and Nutrition tend to be more responsible than those who have not had the opportunity (Liu, Hariri, Bradley, Gottlieb, Leichliter & Markowitz, 2015). Therefore, they manage to adopt healthy lifestyles so as to diminish risky behaviour and have a much better quality of life (Wald, Muennig, O´Connell & Garber, 2014).

The contents on Nutrition and Sexuality are usually dealt with in a shallow way (McCaughtry, Fahlman, Martin & Shen, 2011). Given the students are adults, it is believed, that they already have a good knowledge in these two areas at schools of Penal Institutions in Spain. However, Collantes & Llorente (2015) and Fornons (2011) state that Spanish prisoners/students bear deep conceptual errors that cause them to adopt risky behaviour. Given they have been imprisoned and have no access to new scientific advances, it is necessary that their teachers incorporate activities that allow assessment of their students' erroneous knowledge in their classes. Once they have obtained the right knowledge, their teachers ought to think of educational interventions in order to diminish their students' conceptual mistakes so they can attain a more significant way of learning (Kremer, Specht, Urhahne & Mayer, 2014; Larson, 2015). In this sense, Alekseeva, Krasnopolskaya & Skokova (2015) and Coates, Petersen, & Perry (2013) refute the necessity of performing simulations and practices in adequate contexts, displaying real images related to sexual and nutritional behaviour and the use of other techniques different to using textbooks and expository lessons.

Having said that, the way teachers conceive the construction of scientific knowledge or the way science evolves is the foundation where the didactic proposals are supported (Rozenszajn & Yarden, 2014). Teachers have to detect possible variables of study where they can display differences as to the level of the students' learning process related to Sexual and Nutritional contents, which are the axis of Health Education. In this research four variables will be considered: type of studies, sex, age and body mass index (Scholer, 2002).

To sum up, the aim of this research is to analyse the secondary school students' sexual and nutritional knowledge at a Spanish Penal Institution according to the aforementioned variables and to improve their knowledge through educational intervention designed with this purpose in mind.

Students' Previous Knowledge of Sex and Nutrition

A lot of research has unveiled that students belonging to different levels of study have inaccurate or wrong concepts on scientific, conceptual and methodological contents. Such concepts are mainly triggered by conceptual contamination that derives from inaccurate learning sources, such as the Internet, television, popular beliefs… (Cubero, Calderón, Costillo & Ruiz, 2011; Kortum, Edwards & Richards-Kortum, 2008). In this sense, the necessity of good Sexual Education in particular contexts such as in Biology classes at Penal Institutions is obvious. For it is essential the teacher teaches, more in depth, the content about the anatomic and physiological differentiation of reproductive organs, contraception and sexually transmitted diseases (Alekseeva, Krasnopolskaya & Skokova, 2015; El Maerrawi & Carvalho, 2015; Liu, Hariri, Bradley, Gottlieb, Leichliter & Markowitz, 2015).

Kuhn (1971) affirmed that the domain in Anatomy and Physiology is a key to understanding the Theory of Evolution, one of the paradigms in Biology. Likewise, confusion and misinterpretations have been detected in the meaning of the term Anatomy and Reproductive Health, having students confuse concepts such as vulva and vagina, foreskin and fraenulum, vasectomy and tubal ligation and the effectiveness of contraception pills and the Ogino-Knaus method (Clark, 2001; Darby & Svoboda, 2007; Loc, McDonagh & Rumble, 1995).

In spite of nutritional aspects having a great importance to personal health as well as to the rest of society, both are dealt with in a shallow way so as to cover all the contents dictated by the secondary curriculum. In addition to it, "they" only appear indirectly in textbooks when it comes to the composition of food and anatomic and physiological digestive aspects. Consequently, despite having researched eating disorders at great length, there have been few specific studies dealing with previous knowledge of prisoners-students on Nutritional Education (Smoyer & Blankenship, 2014; Turner, 1997; Watt & Sheiham, 1997). In this way, it should be pointed out that false myths and beliefs exist of particular groups of food and the calorific value they provide, the inaccurate relation and link between foods with particular diseases such as Obesity and not being able to discern the nutritional requirements that each food group offers (Brown, Ioannidis, Cope, Bier & Allison, 2014; Casazza et al., 2013).

Therefore, it is necessary to think about the origins of the hurdles that students find in the process of learning Sexual and Nutritional concepts in the subject of Biology. As well as proposing innovative and effective methodologies in order to nutritionally guide students so that they obtain a significant learning experience (Brun, 1985).

Alekseeva, Krasnopolskaya & Skokova (2015) and Hartas (2015) conclude that the best way of analysing sexual and nutritional knowledge of students is to carry out a quantitative analysis of a pre-test and post-test that has been validated by experts in Didactics of Biology and Health Education. In order to check the validity of an educational intervention, an initial pre-test must be carried out and, slightly over a year later, a final post-test. A didactic unit will always become valid if it diminishes conceptual errors from survey respondents, which will indicate that the learning process has been significant based on a long-term basis (McCaughtry, Fahlman, Martin & Shen, 2011; Rozenszajn & Yarden, 2014; Smith, 2015).

Besides that, in order to complete a validation process of an intervention in the field of Education, it is necessary to carry out a qualitative analysis so that well-defined categories and subcategories are established and determine what the improvements in the learning/teaching process and worked-on contents are due to (Yakovlevich, 2014). One of the most appropriate ways to achieve that in Didactics of Experimental Sciences is to hand out a test with open questions where the student can express whether they considered the intervention helped them improve their knowledge or not in the field of studies and what they consider are the main reasons for a conceptual change (Bergin, 2011). In this way, after a quantitative and qualitative analysis, the teacher may readjust their didactic plans with the final aim to improve the quality and productivity in the teaching of Biology contents.

Educational Interventions of Sexuality and Diet

Teachers should bear in mind the knowledge their students have. From that point, they should build upon that knowledge or modify their educational interventions so the quality of the learning/teaching process will be maximised (Larson, 2015). These didactic units should take into account contents of their own area of work (in this case, Biology) and specific contents in areas to be worked on (Sexuality and Nutrition). The activities outlined

in these units have a didactic aim to be reached and have a close bond to a content to deal with (Smith, 2015). In this way, it is necessary that these activities (Figure 1) help the student study more in depth the contents on the anatomic and physiological differentiation between the masculine and feminine reproductive organs so as to help prevent sexually transmitted diseases and unwanted pregnancies. Anatomy and Physiology form part of one the many branches Biology has, whose learning process presents more difficulties for the students. Its current interest is unquestionable in order to attain an adequate scientific literacy (Scholer, 2002).

Aim: To become familiar with the name and where masculine and feminine reproductive organs are.

Content: Anatomy of the human reproductive organs.

Activity: To complete the crosswords with names (in Spanish) of masculine and feminine reproductive organs.

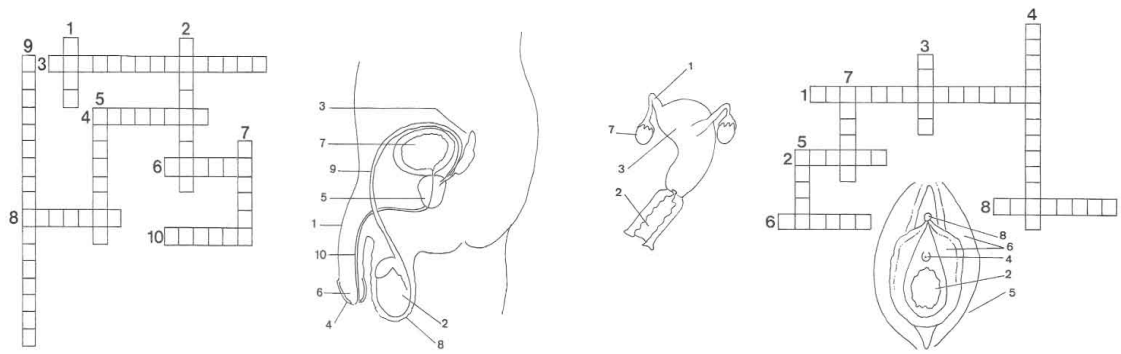

Figure 1: Example of outlined activity in the Sexuality didactic unit.

On the other hand, one well-implemented nutritional educational intervention ensures improvement of previous knowledge students have before they are submitted to the formative action (Banet & Núñez, 1997). In this way, students manage to reorganise their ideas about nutritional processes and obtain essential knowledge to adopt healthy nutritional habits (Powers, Struempler, Guarino & Parmer, 2005). In order to obtain this improvement, it is necessary in the classroom to apply a constructive methodology as opposed to the traditional methodology based on explanations and the use of textbooks. It is necessary to use diverse activities (Figure 2), such as of inquiry which favours the autonomy of the learning process; where the teacher would become a facilitating element of the learning process and the student would take the main role (Brown, Ioannidis, Cope, Bier & Allison, 2014; McCaughtry, Fahlman, Martin & Shen, 2011).

Aim: To create an adequate diet according to height and weight of the student and include foods from the food pyramid.

Content: Healthy diet. Food and Calories.

Activity: Create a healthy diet according to body mass index and using the food pyramid as a guide.

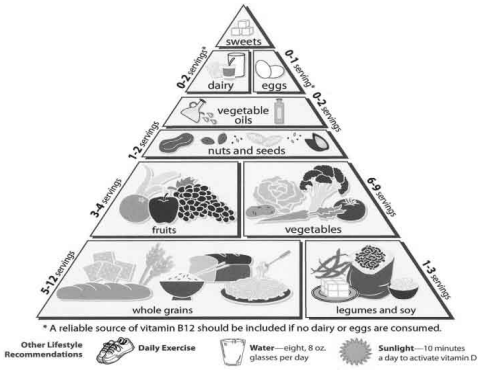

Figure 2: Example of outlined activity in the Nutritional didactic unit.

Research Questions

In this current research the following questions were seen to:

a) What is the Sexual and Nutritional knowledge that the students of secondary school have at a Penal Institution in Badajoz? What statistically significant differences are there in the content according to the four variables of study (type of studies, sex, age and body mass index)?
b) Are the educational interventions on Sexuality and Nutrition carried out to improve the knowledge on the students subjected to the study valid?
c) What aspects should teachers and students of Biology bear in mind at a Penal Institution to improve the quality of the teaching/learning process?

Methodology of Research

General Background of Research

A descriptive/exploratory research was carried out where a type of research known as test research method was used. In this way, a pre-test was designed and validated allowing diagnosis and analysis of the previous sexual and nutritional knowledge of the studied imprisoned population. After the pre-test was completed, the analysis detected conceptual inaccuracies in the students according to the four defined variables of the research.

In order to restructure their inaccurate knowledge, an educational intervention was designed and conducted. It was evaluated with another test that displayed two open questions that students answered through which we could verify if the intervention helped to improve and restructure the conceptual errors.

After a year had passed, a post-test was conducted (bearing the same structure and items as the pre-test) through which we verified if the restructured sexual and nutritional knowledge had been significantly internalised in the body of students' cognitive structure and if it had produced a long term learning process. Research time took three years.

Sample Selection

In this study the Penal Institution of Badajoz (Spain) was selected given it has a very diverse range of students according to age, social-cultural level, geographic origin, sexual tendency and type of studies.

Inside the institution, the last year of secondary school was chosen given that at this stage, according to the educational curriculum, the students must have become familiar with the concepts related to this project. A total number of 30 students were counted. According to their type of studies, 15 of them studied Humanities and the remaining 15 studied Science, according to gender, 15 women and 15 men. According to age, 10 of them aged between 18 and 27, another 10 students aged between 28 and 37 and the remaining 10 aged between 38 and 47. Finally, according to body mass index, 15 of them were fit and the remaining 15 were overweight.

Instrument and Procedures

In order to become aware of sexual knowledge, a test was made (pre-test and post-test) with 40 yes/no questions, 10 questions on Anatomy, 10 questions on sexually transmitted diseases and 10 questions on contraception and unwanted pregnancy prevention. In order to become aware of nutritional knowledge, a test was made with 24 yes/no questions that were divided into 2 questions per each nutritional category (vegetables, fruit, cereal, legumes, milk and dairy, meat, fish and shellfish, eggs, oils and fats, sweets and sugars, drinks, vitamins and minerals). Each question had three possible answers: yes, in case of agreeing with the considered statement; no, in case of disagreeing; and, DK/NO when the participant did not know which answer to choose. Afterwards, the tests were validated by four experts in Didactics of Experimental Sciences and in Health Education.

In order to confirm if the carried-out educational intervention was valid to improve the knowledge of students, a test was developed and validated in which the following open question was formulated: Do you think that the teaching method used for the didactic units on Sexuality and Nutrition was valid to improve your knowledge? "Please outline the type of knowledge that was improved". So as to detect what aspects teachers and students of Biology ought to take into account in order to improve the learning/teaching process of the contents previously

worked on, a second open question was asked: "What aspects of the educational intervention improved your Sexual and Nutritional knowledge?"

Data Analysis

After the students had completed the pre-test and post-test on Sexuality and Nutrition, they were quantitatively analysed through the statistical program SPSS 17.00 for Windows. The inferential analysis was carried out bearing in mind a significance level of 5% ($p<0.05$). Thus, for the gender analysis the tests of *U of Mann-Whitney* (type of study variables, gender and body mass index) and the *H of Kruskal-Wallis* were used for multiple comparisons (age variable).

On completion of the test on educational intervention, it was qualitatively analysed through the program NVivo 10 for Windows. To do this, corresponding categories and subcategories (Table 1) were established following the proposals from Kelle (2007) and Tójar (2006). The answers given by the participants were categorised and a recounting of each category and subcategory was done. Finally, it was checked if there were statistically significant differences according to the categories and the variables of study through a quantitative analysis in the same way as the previous section.

Table 1. Categories and subcategories of qualitative analysis of sexual and nutritional knowledge and educational intervention.

Categories	Subcategories
1. Change-Improvement of Sexual Knowledge	1.1. Anatomy and Physiology of female sexual reproductive organs 1.2. Anatomy and Physiology of male sexual reproductive organs 1.3. Contraception methods and unwanted pregnancy prevention 1.4. Sexually transmitted diseases and healthy habits to prevent them
2. Change-Improvement of Nutritional Knowledge	2.1. Food and Obesity 2.2. Design of a healthy diet 2.3. Food, nutrients and nutritional contribution 2.4. Food, other eating disorders
3. Emotional Nature	3.1. Student´s attitude 3.2. Teacher´s attitude
4. Learning Process	4.1. Conceptual errors 4.2. Learning process evolution 4.3. Reassurance of previous knowledge
5. Evaluation	5.1. Improvement of marks 5.2. Less effort made to prepare for exams
6. Methodology	6.1. Teacher´s change of role 6.2. Student´s change of role 6.3. Use of different activities and resources 6.4. Regard to students´ previous ideas

An essential element to the development of metacognitive strategies was the collaborative work conducted by the teachers and students of the Penal institution. The educational interventions were created according to constructivist perspective, where the students were active elements building up their own knowledge through inquiry and research activities they outlined themselves.

Results of Research

The inferential results of the Sexuality and Nutrition pre-test show that there are statistically significant differences on the students' previous knowledge, therefore, the students of Humanities, male gender, aged between 28-37 and overweight are the ones whose knowledge is the most inaccurate. After a year of conducting the educational intervention, the results of the post-test indicate that there are no statistically significant differences on

the answers given by the participants and thus improved their sexual and nutritional knowledge (Table 2).

Table 2. Quantitative results of the right and wrong pre-test and post-test answers of the students on Sexuality and Nutrition (n=30; 1- α=95%).

		Sexuality Test				Nutrition Test			
		Right answers		Wrong answers		Right answers		Wrong answers	
		Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Variables	Students	p-value							
Studies	Humanities	0.012*	0.461	0.013*	0.643	0.000*	0.436	0.000*	0.202
Gender	Male	0.011*	0.251	0.012*	0.516	0.000*	0.525	0.000*	0.609
Age	18-27 and 38-47 years old	0.015*	0.274	0.014*	0.427	0.040*	0.254	0.040*	0.614
Body mass index	Overweight	--	--	--	--	0.000*	0.148	0.000*	0.624

Regarding the qualitative results of the categories of change and improvement of Sexual and Nutritional knowledge the students consider that the educational intervention helps them improve their knowledge of contraception methods and unwanted pregnancy prevention and the existing relationship between ingested food and obesity (Figure 3).

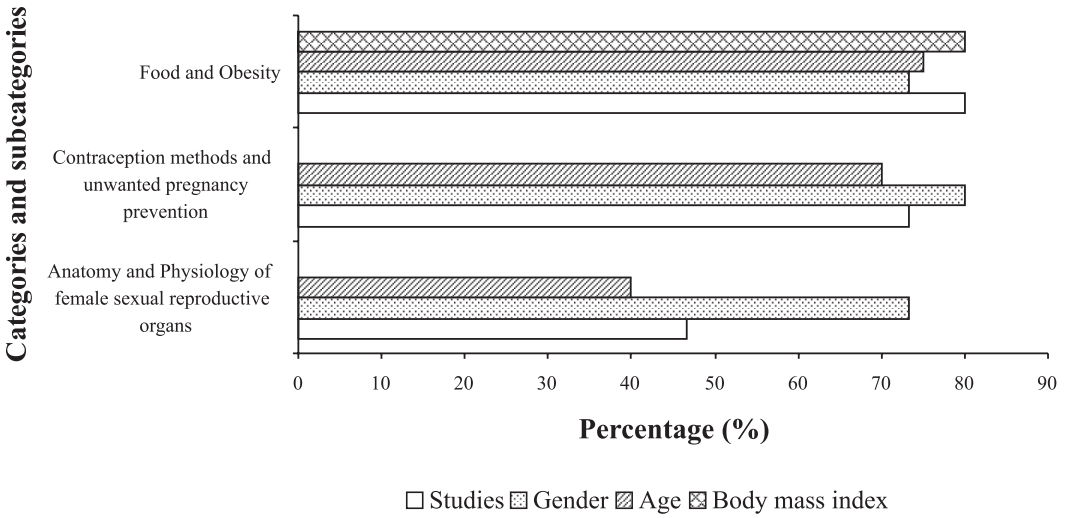

Figure 3: Percentages of improvement of Sexual and Nutritional knowledge of the students according to the four variables of study (n=30; 0< %< 100).

Besides that, according to gender, it is affirmed that men, thanks to the intervention, improve their knowledge of Anatomy and Physiology of female reproductive organs (Table 3).

Table 3. Transcriptions of six students regarding their improvement in the contents of the sexual and nutritional category.

Categories	Subcategories	Variables	Characteristics of improvement of knowledge
Change-Improvement of Sexual Knowledge	Anatomy and Physiology of female sexual reproductive organs	Male, aged 32 and overweight. Student of Humanities.	*"Thanks to the intervention I learned to tell the parts of the female reproductive organs (where the clitoris, vagina are...) And what they are used for."*
		Male, aged 44 and average weight. Student of Sciences.	*"The knowledge that was improved was related to women, given I did not know of many parts of the female Anatomy."*
	Contraception methods and unwanted pregnancy prevention	Female, aged 20 and overweight. Student of Sciences.	*"I learned about the female version of the Condom and the hygienic habits to implant the IUD or coil."*
		Female, aged 26 and average weight. Student of Humanities.	*"That the Ogino-Knaus method is not reliable enough to prevent pregnancies."*
Change-Improvement of Nutritional Knowledge	Food and Obesity	Female, aged 31 and average weight. Student of Humanities.	*"My knowledge of non-fattening food was improved and I learned that the society states that they are fattening, such as potatoes, water and bread."*
		Female, aged 33 and overweight. Student of Humanities.	*"I thought that if fruit was eaten before lunch, it would not be fattening but I learned that fruit fattens you independently of when you eat it because the energy contributions are the same"*

The qualitative results of the analysis of the causes and consequences of the educational intervention regarding the improvement of knowledge show that students consider that the change of student's attitude and the use of different activities and resources lead to an improvement in the learning process (Figure 4).

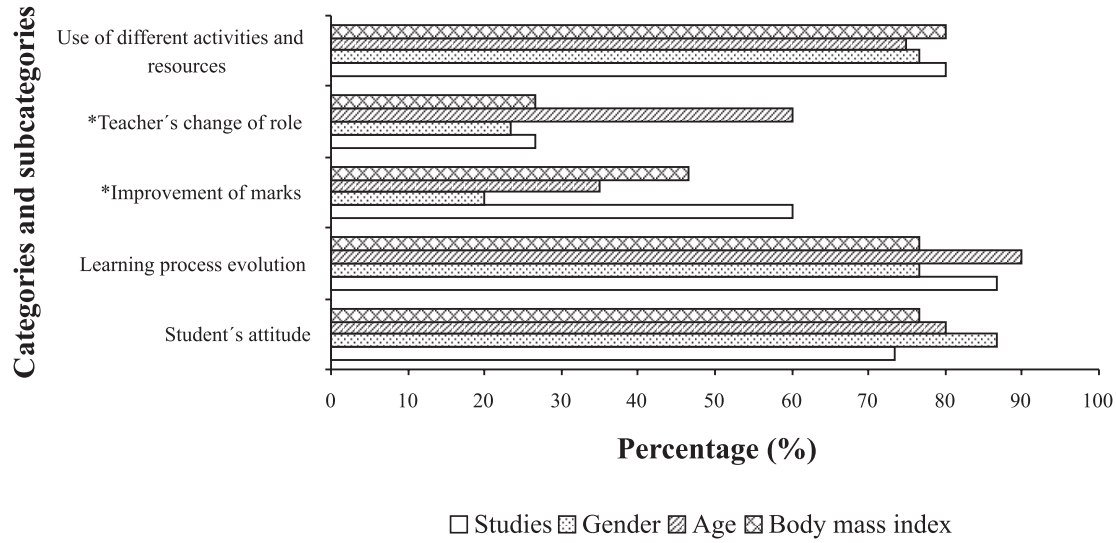

Figure 4: A qualitative and quantitative (*) analysis of the categories and subcategories of the educational intervention that improved the learning process for the students.

The quantitative analysis of the categories and subcategories of the qualitative analysis show statistically significant differences (*) according to the variables of study, thus the students of Humanities consider that the intervention helped them improve their marks (Figure 4); and, the students aged 18 to 27 and with average weight indicate that the change of role of the teacher is essential to improve the teaching/learning process (Table 4).

Table 4. Transcription of ten students regarding the causes and consequences of the improvement of the educational intervention.

Categories	Subcategories	Variables	Characteristics of improvement of knowledge
Emotional Nature	Student´s attitude	Male, aged 30 and average weight. Student of Humanities.	"With this new didactic method, it is easier to learn the concepts because it forces you to think of those things and understand them."
		Female, aged 31 and average weight. Student of Humanities.	"The monotony of how we traditionally did things in class was broken, and in this way, it caught our attention and made us glimpse the functionality of learning the contents for our daily life."
Learning Process	Learning process evolution	Male, aged 44 and overweight. Student of Sciences.	"With this method the knowledge I previously had was becoming broader and therefore I understood the new concepts better."
		Female, aged 40 and overweight. Student of Humanities.	"We completed various questionnaires in which we checked the knowledge we had and in this way I understood the new concepts better."
Evaluation	Improvement of marks	Male, aged 39 and average weight. Student of Sciences.	"The method was valid as it helped me obtain a higher mark in the exam and easily pass (the subject?)"
		Male, aged 26 and average weight. Student of Humanities.	"You can pass the exam revising the day before because you understand the concepts."
Methodology	Teacher´s change of role	Male, aged 21 and average weight. Student of Sciences.	"In other classes, the teacher explains and sets exercises to do. In this class, the teacher guides us through our learning process."
		Female, aged 21 and overweight. Student of Humanities.	"The teacher used to give brief instructions on how to work out the exercises and problems; but the spotlight was on the students."
	Use of different activities and resources	Female, aged 19 and overweight. Student of Sciences.	"We did a lot of exercises to give our opinions and to debate them. In addition to this, we did laboratory experiments which we had not done before."
		Male, aged 44 and average weight. Student of Humanities.	"We watched films about Sexuality and Nutrition and we used the computers to search for more information than what a textbook could give us."

Discussion

The obtained results show that the secondary school students of the Penal Institution of Badajoz present conceptual differences on Sexuality and Nutrition according to the type of studies, gender, age, and body mass index. These results coincide with that of others obtained by other authors (Hartas, 2015; Liu, Hariri, Bradley, Gottlieb, Leichliter & Markowitz, 2015; Pozo, Gavidia, Cubero & Ruiz, 2015), who indicate that the influence of different variables has to be taken into account in the teaching/learning process of the Biology students in prisons. In this way, this research coincides with Alekseeva, Krasnopolskaya & Skokova (2015), Banet & Núñez (1997) and Casazza et al. (2013) when it comes to considering that the quantitative analysis of a previously validated test by experts in Health Education and Didactics of Experimental Sciences is a valid instrument for detecting which groups of students present previously accurate or inaccurate knowledge. In general, as it occurred in this present research, students of Sciences, female gender, fairly young and with average weight are the ones who have better knowledge.

Starting from the premises of Coates, Petersen & Perry (2013) and Cubero, Calderón, Costillo & Ruiz (2011), the promotion of health and the prevention of diseases are the main axis by which educational interventions on Anatomy and Reproductive Physiology (Darby & Svoboda, 2007) and Nutrition are based on, hence the preoccupation with conducting research on said topic. Even more so in prisons, where grave confusions have been detected regarding the way in which contraception methods were used in a face-to-face meeting (Clark, 2001; Loc, McDonagh & Rumble, 1995) in order to prevent sexually transmitted diseases (El Maerrawi & Carvalho, 2015) and the need that the students obtain the necessary alimentary knowledge to decide what type of food they should

choose from the catering that is offered to them in order to get into a healthy diet (Smoyer & Blankenship, 2014; Turner, 1997), as it occurred in our study.

As Brown, Ioannidis, Cope, Bier & Allison (2014) and Powers, Struempler, Guarino & Parmer (2005) conclude, it is necessary that students take into account the inaccurate ideas they have related to Sexual and Nutritional Health and the related terminology of both. Also, it is essential that the teachers go back to the previous ideas students of Biology have bearing in mind a constructivist Epistemological framework where students are able to develop their own conceptualisations and the teacher is the one who should guide them on how to modify or transform them (Kuhn, 1971; McCaughtry, Fahlman, Martin & Shen, 2011). In this sense, conducting educational interventions such as the ones presented in this study, with inquiry activities help improve the didactic knowledge of the Sexual and Nutritional contents of the students (Kortum, Edwards & Richards-Kortum, 2008; Rozenszajn & Yarden, 2014). In order to do that, it is necessary that Biology teachers analyse a series of qualitative variables that enable them to understand what aspects of Secondary Education curriculum they should improve to guarantee success in the teaching process (Hartas, 2015; Smith, 2015).

This research shows a change of the student's attitude in the educational intervention, the use of different types of activities and educational resources are key factors in the evolution and improvement of the student's knowledge at the Penal Institution in Badajoz. Similar to other research (Larson, 2015; Wald, Muennig, O´Connell & Garber, 2014), the change of the role of the teacher is an aspect that Biology teachers ought to bear in mind, thus the students are the "lead actors" of knowledge and through enrichment activities and reinforcement of contents (Laboratory experiments to visualise microscopic preparations of microorganisms that cause sexually transmitted diseases, the design of a healthy diet according to the body mass index of the student, debates about educational videos and books on Sexuality and Nutrition, semi-structured exercises so as to, starting from a premise, demonstrate a fact…) a learning process is acquired based on a long-term basis (Brígido, Couso, Gutiérrez & Mellado, 2013; McCaughtry, Fahlman, Martin & Shen, 2011; Rozenszajn & Yarden, 2014; Scholer, 2002). In this research, similar to those of other cases (Kremer, Specht, Urhahne & Mayer, 2014; Pozo, Gavidia, Cubero & Ruiz, 2015), the students of Humanities with average weight consider that all these aspects help them attain, apart from the improvement of exam marks, a more positive assessment with this type of participatory methodology than with a traditional/expository methodology.

Conclusions

Teachers of the Penal Institution would be advised to use different activities and didactic resources and ought to change the role of the student so that the learning/teaching process is improved. This conclusion is important to the teachers who work at any Penal Institution because they demonstrate what groups of students are more at risk of developing unhealthy lifestyles given a lack of good sexual and nutritional knowledge. This may occur, in some cases, when the prisoners have restricted access to information through the Internet and scientific progress made public through the radio, television and educational magazines. For instance, risky sexual behaviour often takes place in a face-to-face meeting and in the dining room prisoners do not notice the eating disorders that may lead them to have an unhealthy diet. In addition to that, we must bear in mind that teachers can help to reduce those risks by conducting interventions where emotional, conceptual, methodological and attitude aspects are worked on. Thus, the student body becomes the protagonist of the teaching/learning process, which enables improvement of inaccurate knowledge allowing them integration into an active society once freedom has been granted.

The bureaucratic paperwork to make it possible to conduct research with students/prisoners in Spain is hard to obtain and the number of inmates that are granted a Secondary School education is limited because of the illiteracy found in the imprisoned population. This has meant that this research could not augment the sample size nor the number of analysed institutions, which created a limitation. All this creates the need to keep on researching in the future with students from other educational levels and other institutions.

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