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BREASTFEEDING IN 19th CENTURY LITERATURE. FAUSTINA SÁEZ DE MELGAR

Lactancia materna en la literatura del siglo XIX. Faustina Sáez de Melgar

Mª Isabel Abradelo from Usera [1]
University CEU San Pablo. Spain.
iabrad@ceu.es

Abstract
Breastfeeding has always been considered an early and essential bond between mother and child. In many cases, wet nurses were the substitute for the mother who was more concerned about her social life and who neglected her duty to the baby. Moreover, the author stresses that this relationship can endanger the life of the child and become the cause of the acquisition of vices and diseases. To avoid the dire consequences of this disassociation from the mother, Faustina Sáez de Melgar (Villamanrique de Tajo 1834 - 1985), like many other authors in the 19th century, emphasizes the need for this initial rooting in her journalistic articles, as well as in her novels. This article reviews the relevance of this author within a stream of more conservative writers who defend the role of women as angels of their home. Faustina Sáez de Melgar writes in women's magazines of relevance at the time and in both, magazines and her novels, reference is made to the role of women associated with the upbringing and personal education of children. Breastfeeding, as shown by the prolific quotations on this subject, was one of the concerns she made explicit in her literary production.

Keywords: breastfeeding, literature, Faustina Sáez de Melgar, 19th century novel, 19th century women's magazines, wet nurses, childhood.

Resumen
La lactancia materna se ha considerado en todas las épocas como un vínculo temprano e imprescindible de unión entre la madre y el hijo. Las nodrizas eran, en muchos casos, el sustituto de la madre que se preocupaba más de su vida social y descuidaba su deber hacia el bebé. Además, la autora destaca que esta relación puede poner en peligro la vida del niño y ser la causa de la adquisición de vicios y enfermedades. Para evitar las consecuencias funestas de esta desvinculación de la madre, Faustina Sáez de Melgar (Villamanrique de Tajo 1834 - 1985), como muchas otras autoras en el siglo XIX, hace hincapié en sus artículos periodísticos, así como en sus novelas, en la necesidad de este arraigo inicial. Este artículo revisa la importancia de esta autora dentro de la corriente de

1 **Correspondence author:** Mª Isabel Abradelo de Usera iabrad@ceu.es

escritoras más conservadoras que defienden el papel de la mujer como ángel del hogar. Faustina Sáez de Melgar escribe en revistas femeninas de relevancia en su momento y tanto en ellas como en sus novelas, se hace referencia al papel de la mujer asociado a la crianza y educación personal de los hijos. La lactancia materna, como demuestra lo prolífico de las citas a este respecto, fue una de las preocupaciones que explicita en su producción literaria.

Palabras clave: lactancia materna, literatura, Faustina Sáez de Melgar, novela siglo XIX, revistas femeninas siglo XIX, nodrizas, infancia.

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1. INTRODUCTION

No one doubts about the importance of breastfeeding for the proper development of the child today. Although there are differences of opinion as for the length of the period in which it is recommended and its compatibility with other types of foods is discussed according to age, advances in research have proved its importance. Likewise, it has been possible to develop substitutes that facilitate healthy feeding for the baby if breastfeeding is not possible, for whatever reason.

In the 19th century, however, the picture is very different: First of all, there existed a number of beliefs that science could not test about the influence that breast milk had on the baby. Not only in terms of the transmission of diseases (science has discarded the transmission through breast milk of many ailments) but, above all, about the tendencies, vices and virtues that children inherited through breastfeeding.

Added to this ignorance of the true effects of milk, infant mortality rates had nothing to do with the current rates in any European country. Therefore, there was a well-founded fear that any disease could end a child's life in its first two or three years.

Thirdly, it must be taken into account that a woman with sufficient economic resources had no other task than to be responsible for her home, to govern in service and to care for and educate her children.

Under these circumstances, when the writers advocate breastfeeding, they do so standing to principles that have little to do with those who do it today: The alternatives are different, the reasons for their convenience are different.

2. OBJECTIVES

This article aims to explain how the concept and usefulness of breastfeeding in the

19th century differs from the perspective of a writer and to highlight, on the basis of the references that Faustina Sáez de Melgar makes in her articles and novels, her interest in reinforcing this habit and persuading the mothers she is addressing of its benefits.of the child today. Although there are differences of opinion as for the length of the period in which it is recommended and its compatibility with other types of foods is discussed according to age, advances in research have proved its importance. Likewise, it has been possible to develop substitutes that facilitate healthy feeding for the baby if breastfeeding is not possible, for whatever reason.

3. METHODOLOGY

The methodology followed in this analysis is based on the study of the texts published by Faustina Sáez de Melgar and her contemporaries in what were then called women's magazines, periodicals with the aim of entertaining and training women readers. These publications and Faustina Sáez's novels offer numerous references to the posed question and identify breastfeeding with a use within the paradigm of the exemplary woman who is proposed to their readers.

4. DISCUSSION

4.1. Breastfeeding and wet nurses

Breastfeeding has always been in question because it is inevitably linked to the condition of the human being from the moment of birth until the society in which it develops indicates that it is no longer necessary to depend on milk for nutrition. Both the moment when the child begins to feed from the mother or wet nurse, and the moment when he or she ceases to depend partially or definitively on one or the other for food, have traditionally depended on cultures.

The code of Hammurabi, the Spartan laws or the Greek[2] civilization have dealt with this issue. They have valued the role of mothers and wet nurses and have stipulated what contact they should have with the baby in both cases and the period of breastfeeding. Moreover, in many cultures, it has been estimated that royalty or character traits were transferred to the child through milk, which underlined the importance of this first food not only in the child's strength and health but also in his or her inclinations and virtues.

The maternal bond, then, extends beyond the fact of having carried the child in her womb and is perpetuated through the subsequent contact in the first years of life. This relationship enables the mother to make moral demands on the child because of her generous efforts to give him life and food. This way of understanding the mother-child relationship is reflected in literature from the earliest times. Hecuba begs Hector not to confront Achilles, making reference to the fact that she is his mother and has breastfed him since he was born (Iliad

2 Reboreda Morillo, S. (2017). Breastfeeding in ancient Greece: between myth and history. Dilemata, 9(25), 23-35. https://www.academia.edu/34749765/La_lactancia_en_la_antigua_Grecia_entre_el_mito_y_la_historia_B reastfeeding_in_Ancient_Greece_between_Myth_and_History

XXII, 79-91), referring to one of the classic examples.

Breastfeeding has been an important link between child and mother that has not always been valued in the same way. It should be pointed out that, even though the figure of the mother who breastfeeds her child has been vindicated with scenes of the Virgin Mary (Virgo Lactans) since the end of the Middle Ages from the point of view of Christian art, society has also questioned whether the wear and tear on the mother caused by breastfeeding was inevitable and the figure of the wet nurse has been created to replace it.

Thus, wet nurses have existed since Ancient Greece to substitute with their role those mothers, who could afford it because of their social situation, to avoid their physical wear and tear, to be able to maintain their social life without the tie of depending on the needs of the child or, in some cases, to facilitate a new pregnancy since due to the high rate of infant mortality, wealthy families did not hesitate to have as many children as possible to ensure that, although not all of them survived, some could make it and continue the family.

Therefore, it is just as easy to find references to the special relationship that is established between mother and child on the occasion of breastfeeding, as to the role of the wet nurse as a substitute for the mother in the task of raising the child, even beyond simple feeding.

The wet nurse also appears in texts and many philosophers and anthropologists, since the 19th century, have advocated the disappearance of her role except in cases of absolute necessity -the death of the mother, for example- for different reasons: Firstly, because they left the care of their own children to take care of those of others. Another argument frequently used was that she was not just another employee at the service of the family but, in recognition of her fundamental role, she enjoyed excessive privileges (food, room near the baby, salary...) in comparison to other members of the service, this could cause envy and mistrust[3]. Finally, she could give diseases to the baby that, at the time, were incurable. Although in this sense, it must be recognized that it has been exaggerated what maladies are transmitted through breastfeeding[4], and above all, the influence on the character and habits transmitted by them.

4.2. The angels of the home

In Spain, in the 19th century, a group of female writers, who were aware of the lack of education of women in general at all levels of society, appeared. They proposed to educate their contemporaries so that they could have their own

3 Palmer, S., La mujer madrileña del siglo XIX, Madrid, Institute of Madrid Studies of the CSIC, Madrid City Council, 1982.

4 Currently, the WHO and the Spanish Association of Pediatrics only recognize risk to the infant in cases of mothers infected with human T-cell leukemia virus and HIV, which are transmitted through milk. Individualized assessment is also recommended for certain types of hepatitis, which must be given suitable prophylaxis. However, it strongly advises the breastfeeding the mother over any other type of feeding during the first six months. Lozano de la Torre, M. J. “Lactancia Materna”, pp. 279-286. Spanish Association of Pediatrics. aeped.es/sites/default/files/documentos/lm.pdf

criteria.

They develop their work by giving training workshops for working women and also exert their influence on women with more resources through the foundation of magazines and the publication of novels, in which their protagonists defend a model of woman that some authors have defined as “The angel of the home” taking the reference of a poem by Coventry Patmore.

Coventry Patmore, in his poem “The Angel of the Home” (1854), attributes the spiritual superiority to the wife over the man and, for this reason, exempts her from participating in politics and from the problems of society, which men handle better. On the contrary, woman is assigned responsibility for domestic affairs, she has the moral salvation of her family in her hands. Only her virtues are capable of making the husband redirect his erroneous steps, after forgiveness; and it is their responsibility to take care of their children from the moment they are born, to take care of them in the cradle by adopting this model. We will never say superiority because the authors do not seek to take risks, but to claim a part of social life that of their role, which not even their own contemporaries valued.

The author that will be discussed, Faustina Sáez de Melgar, comtemplates it this way in *Las mujeres españolas, americanas, y lusitanas pintadas por ellas mismas*:

The same author, in the prologue of *Las mujeres españolas, americanas, y lusitanas pintadas por si mismas* establishes clearly which are the principles about women that she advocates:

- Women have their own sphere of action, which nature itself has given to them, and it is necessary to dispense with certain more or less flattering theories, which in the field of practice could only produce painful and irremediable falls.
- A woman is born only to be a woman; that is, to be the companion of a man, his friend, his sister, his mother, his wife, his daughter, his selfless counselor, his angel of charity in his tribulations, and the star of his hope in moments of discouragement.
- The family is the true kingdom of the woman and only in the domestic home does her throne reside. To look for a woman outside these places is to expose oneself to not finding her.[5]

4.3. Women’s magazines

Through women’s magazines - so called by the authors themselves - education and information is provided on issues that affect what they consider the female world. These women write both in the magazines and in novels that extol the same values that draft the profile of the “Angel of the Home”.

Women’s newspapers appeared in 1795 though the beginning of this work with

5 Sáez de Melgar, F. Spanish, American, and Lusitanian women painted by themselves. Barcelona, Typographic Establishment of Juan Pons [1885]

El Correo de las Damas is delayed until the nineteenth century by others. It was first published in April 1811 with the aim of "communicating and extending the empire of reason; making the truth pleasant and presenting important plans for the conservation and prosperity of the Monarchy and the moral, police and scientific education of young people of both sexes". (Roig, 1977, p. 15). The same orientation will later be found in *El Periódico de las Damas* of 1822.

During the Regency, the most important publications are *La Mariposa*, and *La Moda*. They had the collaboration of Carolina Coronado, Gertrudis Gómez de Avellaneda and Cecilia Böhl de Faber. These authors spread their ideas not only in these purely feminine magazines, where the main topics were fashion, health and education of children. Their articles were also found in generalist newspapers.

During the reign of Elizabeth II, an expansion of women's journalism took place with titles and topics very much geared to contemporary women. Many female authors participated in the writing of these publications. Unfortunately, many of these gazettes of names that refer to the feminine universe of that time and that would be unacceptable today were closed without publishing more than ten or twelve issues. Some of them resisted a little more, *El Tocador, El Defensor del Bello Sexo, El Pensil del Bello Sexo*, they resisted a little more but their chronicles of fashion, their advice and defense of the role of women did not have a much greater continuity either.

It is interesting to note that *Ellas, Gaceta del bello sexo*, which immediately after the publication of its first issues was renamed 'Gaceta del Bello Sexo' in response to the criticism that its first name attracted. This can be considered a very brief precedent for feminist journalism in Spain. The director of the publication rectifies its title immediately, despite the fact that the first page clearly indicates that the claim it makes is women's education:

Education is that fundamental key to civilization, which is so backward even in Spain, both because of the neglect of certain imprudent parents in the middle class and because of the little stimulus it offers to the proletariat. That torch that should shine in the workshop as in the living room, is not only the basis of the future of every child, considered with respect to an individual who has to be part of society with no other transcendence than his own happiness, but constitutes the fortune or misfortune of many beings if we consider that this individual with a bad example or (sic) wrong advice makes his children march on the path of ignorance. Pernicious in extreme (sic) is such a fault in man, but not of lesser and worse consequences in woman; in whom unfortunately we see more examples, due to (sic) indifference with which most nations have looked and look at the instruction of sex destined to (sic) form good wives and good mothers.

It was later called the *Álbum de señoritas* and its publication disappeared in 1852. *El Correo de la Moda, La Violeta*, directed by Faustina Sáez de Melgar, *El Ángel del Hogar*, directed by Pilar Sinués' husband, *El Álbum de Familias, La Guirnalda*; they are all titles that suggest the submission, at least apparent, of journalism written mostly by women to canons that limit it to the domestic sphere and to social issues addressed from their point of view.

Mercedes Roig (1977) lists a series of names that are repeated in these publications as authors of articles: Margarita Pérez de Celis, Angela Grassi, Concepción Arenal (the most important of them all).

In the last quarter of the century, *El último figurín, La Ilustración de la Mujer*, founded by Concepción Jimeno de Flaquer, has followed the same pattern. *La Mujer*, directed by Faustina Sáez de Melgar:

Many centuries of moral subjugation have made the Spanish woman a being without her own will and without initiative; the revolution can change our social condition if there are men who understand the importance of the education of women, help us to perfect it, and mark for us the duties and rights that are proper to us, guiding us along the path of enlightenment to the luminous sphere of intelligence and knowledge, letting us take our share of the serious social issues that must be resolved and to which our own weakness and natural tenderness lend themselves so well.

Women should not remain any longer in the darkness of ignorance: this brings fatal evils to the cause of progress because it turns them into party weapons, exploits their conscience for reactionary ends and introduces the seed of discord into the family when everything in it should be harmony and love.

Roig lists Emilia Serrano, Concepción Jimeno de Flaquer, Gertrudis Gómez de Avellaneda, and from 1873 onwards, *La Ilustración de la Mujer* features articles by its own director, Sofía Tartilán, and by Josefa Pujol de Collado and Clotilde Cerda y Bosch. *Flores y Perlas*, from 1883 and *El Salón de la Moda*, from 1814 to 1914 and with the main collaboration of Faustina Sáez de Melgar's have carried the same type of publications aimed at women where this vision of women is supported beyond the end of the century.

Gertrudis Gómez de Avellaneda, Concepción Arenal, and Emilia Pardo Bazán are fundamental in the list of women who write in the female press about the domestic environment. To the diffusion of ideas about the feminine role in the domestic sphere and in society in general, Pardo Bazán adds her critiques of classic authors in *Nuevo Teatro Crítico*. All of them were able to include their articles in general periodicals, such as *El Imparcial*, and not only in those of a more specific nature for women.

Unfortunately, while women were free to write about social and fashion issues, and their status as writers in this field was not questioned, generalist journalism was forbidden to them with these few and honorable exceptions mentioned above. The basic differences between these two types of publications are, first and foremost, the audience to which they are addressed: some are limited to women of a high social standing, the other is general because it is mainstream journalism, open to publicizing current events. Another difference is the objectives: while the firsts are intended to entertain and educate; in the latter, the aim is informing and forming opinion prevails.

When studying the list of journalists in these women's magazines, written mostly

by women, although not always directed by them, and with the publication of articles written by journalists, philosophers, politicians and male educators; it can be seen, as a conclusion, that the authors are repeated and exchanged and that, also due to the short duration of the publications, the writers are directors or collaborators in the consecutive magazines. They are the same women, they are the same interests and it is a constant form of defense of female education and the role of women from all the stands.

In this way, a group with common goals is created. They thank each other for their participation and invite each other to take part in the different media. In the history of literature and journalism, there has often been no such cohesion and good understanding, instead of the usual competition and use of the press to discredit or at least dismantle the arguments of others. Both this approach to the role of women and feminist authors became more radical towards the end of the century. It must be taken into account, however, that these behaviors, in the case of the women who promote them, are an obvious contradiction to their personal biographies.

Many of them were self-taught or belonged to homes with means where they were properly formed, mastered some language, by their family or by the work of their husbands had traveled through Europe and Latin America. That is, their life trajectory had provided them with a culture much higher than the average of women of their time and their vocation as writers was satisfied without questioning their image of good wife and mother, or of respectable person.

The contradiction arises when they are the ones who burst into public life using women's education as a tool and objective, organize sessions, courses that they themselves give to expand the education they demand for others. They do not hesitate to ask for the support of educational and religious institutions, even as we said, of the monarchy and, of course, in these training plans that became commonplace for girls they include male and female teachers alike.

The texts of these novels do not finish either condemning the protagonists' mistakes to which the necessity or the ignorance leads them. On the contrary, on occasion, society or the abuse of men who take advantage of the superiority granted to them by their economic situation or society in general, are blamed. The protagonist describes herself in these cases with the innocence of ignorance and the inability to see how far a mistake can lead her.

4.4. La Violeta, hispanic american magazine

One of these magazines is *La Violeta*, founded in 1862 by Faustina Sáez de Melgar. During its first two issues, her husband is listed as editor-owner. From the third issue onwards, she is herself. In addition, since 1864, it is dedicated to Isabel II and has become obligatory reading in Feminine Schools. With this support, the magazine firstly committed itself to the defense of good customs according to the canons of the time and very importantly, ensured an important fixed distribution.

Since then, the publication bears the royal shield on its headline and the legend "Dedicated to H.M. Queen Elizabeth II. Director and owner Doña Faustina Sáez de Melgar:" a royal order of the General Direction of Public Instruction, 5th section, appeared in *La Gaceta* on November 21st: In conformity with the opinion of the Royal Council of Public Instruction, the Queen has authorize the Normal Schools and the superior ones of girls to subscribe to the newspaper of literature, education and sciences, work and fashions, titled *La Violeta*, of which director and owner is Doña Faustina Sáez de Melgar"[6]

From this issue onwards, new sections are added and the management is committed to increasing the number of articles on history, geography, science, arts, morals and labor. The royal orders concerning primary education will also be included.

Faustina is going to use this magazine to inform her readers, to educate and distract them. She invites female and male popular authors to write in it, and includes biographies of illustrious characters, stories and essays, poems, figurines, information about fashion in women's dresses...

For the above reasons, *La Violeta* is one of the longest running women's magazines (1862-65). Others, however, because of dissensions among the owners, reached a very short life.[7]

4.5. Breastfeeding, mother's obligation

One of the essential concerns in terms of women's duties and which often appears in the pages of these magazines is the upbringing and training of children. At that time, advances in medicine were not able to save the lives of many little ones who were dying of "fevers" or "weakness" that ended up consuming them without their mothers being able to do anything other than keep watch beside their crib.

It is a topic that goes back more than a century, when the negative role of wet nurses began to be analyzed. Of course, there seems to be no lack of classical testimonies that justify such theory.

Evaristo Fombona, in his article titled "Maternity", says that, as a first duty, the mother must raise her children "If it is transmitted to us in the breastfeeding, according to Plato, the germ of our virtues and our vices". And he adds, in no uncertain terms: "A woman is not worthy of love if, without a serious cause, she does not raise her children".[8]

The first feminist testimonies also recognize the decisive role of breastfeeding in the development of children but do not ignore, either, the fundamental duties of men:

6 *La Violeta*, n. 105, year III, 1864.
7 Palmer, S., Mª del Carmen Revistas femeninas madrileñas, Madrid, Instituto de Estudios Madrileños del CSIC,1993, p.5.
8 Fombona, E., "Maternidad" *La Violeta*, Madrid, 1865, nº 149, p. 484.

Rarely do women write, and it is already a matter of fashion among modern scholars to write about the physical upbringing of children, always drawing attention to the serious fault of women who do not give their children suckling; but I have not seen any who reaches the inhumanity of men who, having lived an unbridled vicious life, unscrupulously go on to marry a simple dove, whose countenance after a few weeks manifests the impiety of the one who has contaminate her and as a result all her descendants.[9]

There would be more than enough reasons for any mother to fail in this duty. In addition, there are other reasons closer to home that would also make it convenient. Breastfeeding of nursing mothers did not always seem to be appropriate, especially when these women had been deprived. As a result, many fell ill, infecting the little ones with diseases that, with the scarce means available, resulted in a very high mortality rate.

4.6. Faustina Sáez de Melgar

Faustina Sáez, born in Villamanrique de Tajo (Madrid) (1834-1895). She wrote from a very young age, at first under a pseudonym. She was married to Valentín Melgar, a journalist who helped his wife to make her way. Later, he was a civil servant and his service record highlights his various assignments as a second class officer, secretary of the civil government, he was assigned to Cuba, Puerto Rico Havana, Puerto Rico, until his retirement.

The couple had four children of which only two reached adulthood: Virginia and Maria de la Gloria. *La lira del Tajo* in 1859 was their first work after the death of their son. It was followed by *La Pastora del Guadiela, La Marquesa de Pinares, La Higuera de Villaverde, Ángela o el Ramillete de Jazmines, Matilde o el Ángel de Valderreal, la Cruz del Olivar, Aniana o la Quinta de Peralta, Amar después de la muerte, Los Miserables de España*, and many others that were published in the Madam Library. She also stood out for her involvement in the Abolitionist Society and for founding the Ladies' Athenaeum.

Her theatrical activity includes *Contra indiferencia, celos*. She stood out for founding the magazine La Violeta and participating as an article writer in many other women's magazines with the aim of educating and making women aware of their role in the family.

Nature provides women with resources, mainly associated with motherhood,-she says- that they must take advantage of to fulfill their role. It is true that it serves two purposes: on the one hand, it protects novels from scandal and censorship; on the other hand, it persuades women of the higher social classes that their role as educators and mothers could not be relegated to nursery mothers and maids, who are not prepared to give children the necessary training, especially from the point of view of moral issues. In the vast majority of cases, her novels offer the

9 Joyes y Blake, I. *El príncipe de Abisinia, novel translated from English*. An apology of the women is inserted below in the original letter of the translator to her daughters, Madrid, Imprenta de Sancha, 1798, p. 201.

pattern of an exemplary woman, so that her behavior serves as a reference for her readers.

The trap of this approach lays precisely in denying the wife or daughter the ability to decide, limiting their field of action to irrational goodness, to goals that have no other guide than generosity, mercy, love. It is not equality that female writers of the nineteenth century defend:

We want the woman who thinks, who feels, who studies, who works; we want good daughters who learn the respect they owe their parents, the respect they owe themselves and the respect they owe society; we want good wives who are the comfort, the hope, the angel of peace of the marital home; We want good mothers, respected and considered by the man to whom they have given children worthy of them, and we do not want instead those philosophical shines, those triumphs of glitter, that double philosophy with which it tries to hide perhaps the dryness of the feelings of the heart, true treasure of the woman. This one has to shine in the middle of the world with her humility as a daughter, with her modesty as a bachelorette, with her tenderness as a wife, with her abnegation as a mother, and finally, with the exact fulfillment of all her duties as a woman.

4.7. Faustina Sáez de Melgar and breastfeeding

As we have noted above, the works of Faustina Sáez de Melgar, both her journalistic writings and her essays and novels, respond to reinforcing the prototype of the angel of the home in the most affluent women. From these women she expects subordination to their husbands and dedication to domestic work:

My wife will never be a famous woman, because I want the mother of my children to be an angel in her home, living only for her family and the household. I do not like wives women who get emboldened by society's applause. I am pleased to see in my wife the modest violet that hides in her retreat the fragrance and merit that Nature endowed her with; it will be a concern, I confess; but the rose that shows off its charms, and flaunts its graces to the eyes of all, could never get my sympathies.[10]

In this author's novels the female protagonists defend their principles and their family over their lives and their happiness in line with the female prototype we have been pointing out.

When Pilar Sinués publishes a biography of this author, she points out that
Faustina had a son, who she fed by herself, with a care superior to all the expensive: but death took him away from her when he was a few months old, and from that day on her pain was so deep that she did not think again about literature.[11]

10 Saez de Melgar, F. *Angela or the Bouquet of Jasmines*, p. 166
11 Sinués, P. (1860). Biography of Mrs. Faustina Sáez de Melgar, in Faustina Sáez de Melgar, La Higuera de Villaverde, Madrid, Imprenta de Bernabé Fernández, 1860, p. 78-88.

Some examples of our author defending breastfeeding as one of the unavoidable duties of a mother towards her children will be mentioned. In the *Handbook of the Young Adolescent or a book for my daughters. Christian and social education for women,* she points out the harm that wet nurses can cause to children. In this case, it echoes the unfounded tradition that through breastfeeding, vices and virtues are transferred to the child. It also seems to have them for the mother:

The first duty of a mother is to bring up her children; the first duty that nature imposes on her is to breastfeed them by herself; in this she gains her health and beauty (...) With milk, diseases, vices of wet nurses and their good or bad instincts are transmitted to the child.[12]

And it is not only in the essays where references to breastfeeding can be found but from the first novels. In *Matilde o el ángel de Valde Real*, published in 1862:

The child was lying in a beautiful ivory cradle, which the Countess had placed immediately on her bed, but so close that she could only extend her arm to pick up the child and put him to the breast, because for one of those very natural affections in all good mothers, she had insisted on breastfeeding him herself.[13]

The same type of references can be found in *Aurora and Happiness*, two years later: “Paulina, his wife, only took care of her house and her children, who were breastfed by herself”[14] and in many others that, with a very clear educational spirit, value or despise the feminine role insofar as it is associated with the values of the young virtuous woman, the heroic mother and the exemplary wife:

This new attraction, that of motherhood, made Estrella’s chain less heavy, which became a chain of flowers by the love of her angel, to whom she devoted all her cares with the immense tenderness of her soul. She lactated it by herself, and always had the precious cradle of her charming Hope beside her bed, that little girl who reconciled her with life, because before feeling this immense pleasure, she had mixed in her prayers a sacrilegious desire, and had asked many times God to free her from the enormous weight of life.[15]

5. CONCLUSIONS

From a 19th century-mentality and in the light of the knowledge and scientific advances of that time, mother breastfeeding is recognized as the most beneficial for the child from the point of view of his health and also, although these theories are later denied, as a way of acquiring virtues and avoiding negative influences by “contagion” from his wet nurses.

In the context of a society that has neglected women’s education, a group of

12 Sáez de Melgar, F. *Manual de la joven adolescente o un libro para mis hijas*. Christian and social education of women by Dña. Faustina Sáez de Melgar. Barcelona, Librería de Juan y Antonio Bastinos editores, 18881, 2nd edition, pp. 28-29

13 Sáez de Melgar, F. *Matilde o el ángel de Valde Real, Episodio histórico de la Guerra Civil*, Madrid.

14 Sáez de Melgar, F. *Aurora y Felicidad*, 1879.

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women writers emerged. In a very contained way, they claimed the important role of women in society by limiting it to the sphere of the family. The angel of the home is the expression that reflects the characteristics of the good daughter, the good wife and the good mother, always sacrificed to fulfill that ideal. The curious thing is that, despite the fact that these authors avoid influencing the male universe; they do create their own magazines and write novels where the protagonists play the role of sacrificial victims of the family.

One of the principles governing this female prototype of mother is to feed her children herself and not to leave them in the care of the service. This characteristic will also be present in the articles of women's magazines and in the essays written by these authors from the second half of the nineteenth century.

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AUTHOR:

Mª Isabel Abradelo from Usera
PhD. in Philology and a degree in Hispanic Philology and English Philology. She has been Academic Secretary (1999-2003) and Vice-Dean (2006-2015) of the Faculty of Humanities and Communication Sciences. From 2105 to 2019 she has been the vice-rector of Students at the CEU San Pablo University. She has taught in numerous teacher-training courses. She is director of the Chesterton Club, which organizes annual international conferences on Chesterton (2012), Lewis and Tolkien (2014), Newman (2015), Jane Austen (2016), the CEU novel Ediciones 2017; detectives (2017), the gothic novel (2018). She has coordinated the publications: Detectives and methods in the police novel. Mª Isabel Abradelo de Usera, Pablo Gutiérrez Carreras and Ignacio Armada, coordinators of Ediciones CEU 2019; *By a Lady, Estudios sobre Jane Austen.* Mª Isabel Abradelo and Pablo Gutiérrez are coordinators of *JRR Tolkien. El árbol de las historias.* Pablo Gutiérrez Carreras, Mª Isabel Abradelo de Usera, Ignacio Armada Manrique (Coordinators) Madrid, CEU Ediciones 2015; *De leones y de hombres: Estudios sobre C.S. Lewis.* Pablo Gutiérrez Carreras, Mª Isabel Abradelo de Usera and Ignacio Armada Manrique (Coords.) Madrid, CEU Ediciones 2014; *Chesterton de pie.* Mª Isabel Abradelo de Usera and Pablo Gutiérrez Carreras, eds. CEU Publications, 2012. 2005; Introduction and edition and notes of Corazones sin Rumbo, by Pedro Mata, Castalia, Colección Clásicos Madrileños, ISBN 84-7039-827-X, 1999.

iabrad@ceu.es
Orcid ID: https://orcid.org/0000-0002-1829-9675

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BIBLIOGRAPHIC NOTES ON SEXUAL HEALTH IN MIDDLE-AGED WOMEN

Apuntes bibliográficos sobre salud sexual en mujeres de edad mediana

Aime Napoles Betancourt
Federico Capdevila Polyclinic, Havana, Cuba.
aimenb@infomed.sld.cu
Ada Caridad Alfonso Rodriguez
Cuban Multidisciplinary Society for the Study of Sexuality, Havana, Cuba.

Abstract
In the woman, the line of separation between young adults and older women is that of middle age. The increase in life expectancy brings with it an increase in the number of women living in this period of the life cycle. Studies on climacteric and menopause have reoriented research in the last decade towards qualitative aspects with the intention of deepening the understanding of the differences. At the same time, ethnographic data demonstrates that the experience of women in this stage of the life cycle was partially captured by their methods of understanding the risk factors that could generate negative impact on the sexual function of women in this stage of life. All the biological and physiological changes that women go through in midlife are part of the very evolution of human biology and do not in themselves justify a sudden and significant loss of sexual activity.

Keywords: women in middle age, life cycle, menopause, sexual health.

Resumen
En la mujer la línea de separación entre la adulta joven y la mujer de la tercera edad, es la mujer de mediana edad. El aumento de la esperanza de vida trae aparejado el incremento de mujeres que viven en este período del ciclo vital. La salud sexual requiere de un enfoque positivo y respetuoso de la sexualidad y las relaciones sexuales, Los estudios sobre el climaterio y la menopausia han reorientado la investigación en la última década, hacia aspectos cualitativos con la intención de profundizar la comprensión de las diferencias y a la vez demostrar con datos etnográficos que la experiencia de la mujer en esta etapa del ciclo vital, era captada de manera parcial por sus métodos de comprensión refieren los factores de riesgo que pudieran generar impacto negativo en la función sexual de la mujer en esta etapa de la vida. Todos los cambios biológicos y fisiológicos por los que transita la mujer en la edad mediana son parte de la evolución misma en la biología humana por lo que estos no justifican en sí mismo una perdida brusca y significativa de la actividad sexual.

Palabras clave: mujeres en la mediana edad, ciclo vital, menopausia, salud sexual.

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1. INTRODUCTION

The middle-aged woman represents the line of separation between the young adult and the elderly woman. It is the stage of their life cycle, between 40 and 59 years old, in which the climacteric occurs, a period where the transition from the reproductive to the non-reproductive stage takes place (Sarduy Naples & Lugones Botell, 2006; FLASOG, 2016).

The concept of Sexual Health issued by the World Health Organization (WHO), refers that:

Sexual health is a state of physical, emotional, mental and social well-being related to sexuality and not just the absence of disease, dysfunction or disability. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility to have pleasurable and safe sexual experiences, free from coercion, discrimination and violence (How Sex Changes with Age, 2016; WHO, 2019).

An approach to the sexual health of middle-aged women, refers to consider the multidimensional character and the set of intervening factors, as for the components: biological, motive-affective-relational and cognitive; without disdaining the set of conditions, structures, physiology, behaviors and socio-cultural contexts that allow the exercise of sexuality. It also includes the feelings, the way of expressing and relating, the representations, the subjectivities and the behaviors of middle-aged women (McCabe *et al*. 2016).

The increase in life expectancy brings with it an increase in the number of women living in this period of the life cycle; the World Health Organization estimates that by 2030 more than 1.2 billion women will be over 40 years of age, which means that their number will have tripled in just 40 years (Manzano Ovies, 2014; Navarro Despaigne & Fontaine Semanat, 2001).

2. ON SEXUAL HEALTH RESEARCH

In recent decades, the sexual health of middle-aged women and female sexuality have been addressed in both Cuban and international literature. Research in this area has focused on how women experience sexuality during the climacteric, postmenopausal, and aging periods; the results obtained express the existence of a prevalence of sexual dysfunction between 25% and 43% in middle-aged

women (Stalina Santisteban, 2011; Sarmiento Leiva, 2000).

Already in the second half of the 20th century, the explosion in the knowledge of sexuality began; this has produced a change in the demand for information and this need has increased with the treatment of the subject being more open.

The first research that related the alterations of the sexual sphere with the menopausal phase was carried out by Dr. Hallstrom, in 1977, and showed the existence of a decrease in sexual desire, in the ability to achieve orgasm and in the frequency of intercourse in women (González Cárdenas et al., 2019).

Studies on climacteric and menopause have reoriented research in the last decade towards qualitative aspects with the intention of deepening the understanding of differences and at the same time demonstrating with ethnographic data that the experience of women in this stage of the life cycle was partially captured by their methods of understanding (Couto Núñez & Nápoles Méndez, 2014).

One of the dimensions of the human being that has historically created differences in its interpretation and study is sexuality, since there are diverse opinions and approaches regarding its meaning, its importance and the relationships with other aspects of human nature. Hence, each culture approaches this natural expression differently (Alfonso Rodríguez, 2010).

2.1. Median age and physiological elements of sexual function

Women in middle age go through climacteric, a process of which until a relatively recent date physiological knowledge was scarce. An important event occurs at this stage: menopause, which is the permanent cessation of menstruation and represents the end of a woman's fertile life; its diagnosis is retrospective and will be made after a period of amenorrhea longer than 12 months, according to the WHO (Sarduy Naples and Lugones Botell, 2006; FLASOG, 2016).

The female sexual response is controlled by the central nervous system, with the parasympathetic nervous system intervening in the general activity and the erectile tissues, while the sympathetic nervous system controls the orgasm, being the product of anatomical, hormonal, vascular and neuronal changes that occur in the body, involving various neurotransmitters.

The sexual response consists of 4 phases:

Desire (libido): The desire to be sexually active, including sexual thoughts, images, and desires.
2. Arousal: subjective sensation of sexual pleasure, accompanied by physiological changes, including genital vasocongestion and increased heart rate, blood pressure and breathing rate.
3. Orgasm: peak of sexual pleasure and release of sexual tension, rhythmic contractions of the perineal muscles and reproductive organs 4.
A parenthesis will be made about sexual excitement, since this is a state related

to some specific feelings, linked to the genitals; in women it has three main ways of expression:
· Central arousal: characterized by mental activation that produces dreams
· Erotic, voluntary sexual illusions or fantasies that can activate peripheral physical, genital and non-genital arousal.
· Non-genital peripheral excitation: expressed by increased salivary secretion, sweating, skin vasodilation, nipple erection, etc.
· Genital excitement: is expressed by congestion of the vestibular vulva and clitoris, in addition to vaginal lubrication (Levin, 1992; FLASOG, 2016).

The endocrine response has a fundamental role in establishing the appropriate threshold for optimal response to sexual stimuli. Oestrogens preserve vaginal health, contribute to lubrication and prevent dyspareunia, while androgens modulate directly to the physiology of the vagina and clitoris, acting on muscle tone, both of erectile tissue and vaginal walls, facilitating the excitation and therefore vaginal lubrication, also influence the central level, as activators of desire (Nelson, 2008).

Sexual behavior, although it should not be modified, suffers some changes caused by the presence of vaginal dryness, the presence of prolapses, the appearance of chronic diseases dependent on atherosclerosis, osteoporosis, endocrine-metabolic imbalance and cancer among others. In this stage it is common to observe a decrease in libido, dyspareunia and anorgasmia, in women who until then had no difficulties in the sexual area (Bajo Arenas et al., 2009; Navarro Despaigne, 2001).

As for sexual function, it is wise to remember that estrogens preserve vaginal health, contribute to lubrication and prevent dyspareunia, while androgens directly modulate the physiology of the vagina and clitoris by acting on muscle tone, both of the erectile tissue and the vaginal walls, facilitating arousal and therefore vaginal lubrication; They also influence at a central level, as activators of desire as well as the decrease of androgens in the decrease of sexual desire, that is to say, the endocrine response has a fundamental role in establishing the adequate threshold for the optimal response to sexual stimuli (Davis & Tran, 2001; Espitia De La Hoz & Orozco-Gallego, 2018).

After menopause, a woman will go through a process secondary to the physiological variations that she presents in the hypothalamus-pituitary-ovarian system, due to the inability of the ovary to perform follicular function, there is no follicular maturation and the levels of follicle-stimulating hormone (FSH) increase, followed by luteinizing hormone (LH); In the absence of follicular maturation, there is no synthesis and secretion of estradiol and inhibin, nor is progesterone produced; the latter is the one that decreases the most, followed by estrogens and androgens, which normally increase genital sensation and stimulate libido and orgasm, which brings about changes in the external genitalia because they reduce collagen fibers, the vaginal epithelium thins, there is an increase in fibrin and thinning of connective tissue with the respective loss of folds, decreased vaginal elasticity, vaginal dryness, decreased vascular response to sexual stimulation, and changes in the pelvic floor, particularly the elevator of the anus or pelvic diaphragm and the

bulbo-cavernous and ischiocavalve muscles, which contribute when they contract, with the penetration and the rhythmic contractions of the orgasm, therefore their changes are expressed in dispareunia and decrease of the desire, also in delay and smaller intensity of the orgasmic response (Navarro Despaigne et al.,2017). Because sexual function and human sexual development span a lifetime, each woman has sexual feelings, attitudes, and beliefs processed through an individual perspective, shaping personal experiences, bringing about changes that vary from woman to woman.

The studies of Navarro Despaigne et al. (2017) in Cuba, as well as those of Espitia De La Hoz & Orozco-Gallego (2018) in Spain, refer to the risk factors that could generate negative impact in the sexual function of women in this stage of life:

Biological/organic factors: Hormonal alterations, urological or gynecological alterations, chronic diseases (Diabetes mellitus, dyslipidemias, metabolic syndrome, arterial hypertension, rheumatological and neurological diseases,...), use of legal drugs (drugs for the control of diseases indicated by professionals, alcohol and tobacco) and illegal drugs (marijuana, cocaine, opiates, amphetamines, cannabis, lysergic acid).

Psychological factors: History of physical or sexual abuse, poor communication with partner, stress, anxiety, depression, unsatisfactory relationships, low self-esteem, conflicts with body image.

Socio-cultural factors: Inadequate sexual education, gender overload, conflicts with religious, personal or family values, social myths and taboos, lack of knowledge of one's own sexual anatomy and physiology, presence of sexual prejudices, traumatic or incestuous sexual experience, insecurity for sexual performance, fear of sexual intimacy, unrealistic expectations, previous personal sexual disorders, low self-esteem

Factors dependent on: partner/link: sexual difficulties of the partner, lack of partner, lack of privacy, technique and skill of the sexual partner, expectations of a negative experience, quality of the relationship and conflicts, miscommunication, third parties, boredom, disappointment, resentment

3. ELEMENTS RELATED TO SELF-PERCEPTION AS ELEMENTS OF CLOSURE OF THE RESEARCH PROPOSAL

The adult brain is both plastic and resilient, and is always ready to learn. Experiences, thoughts, actions, and emotions actually change the structure of the brain. The brain structure is not predetermined and fixed. We can alter the ongoing development of our brains and therefore our capabilities. Human beings are not prisoners of our genes or our environment. We have free will. It may be harder for those who have certain genes or environments; but being "harder" is far from predestined. The brain is constantly rethinking its connective patterns in response to everything it perceives, thinks, or does for its holder. Each experience,

thought, and emotion creates new neural connections or reinforces existing ones (Casañas Velástegui, 2009).

In life cycle anthropology, middle age is located in the adult stage, so women will reach it with a knowledge and representation in their thinking that will allow them to have a perception of themselves and their context.

Conceptually, perception has had different aspects of study by the communication sciences, philosophy and psychology, persisting as a process of formation of mental representations with the function of realizing abstractions through the qualities, which define the essence of external reality, It is also said that perceptions are the processes through which everything that is being interacted with is registered and has meaning, including values, traditions, stereotypes, experiences and knowledge that individuals have about certain aspects of life (Oviedo Gilberto, 2004).

Self-perception of health is the representation or idea that the individual has about his present state or condition of health, expressed in terms of pleasure values or displeasure, of satisfaction or dissatisfaction and which may or may not correspond to the actual level of functioning of your organism (Hernández Sánchez & Forero Bulla, 2011).

The self-perception of health, both of the general state of health and of sexual health, depend on life history, lifestyle, health and work conditions for those who work alone at home, as well as for those who have a double workday. Culture and its social construction is individualized in each woman, through its wide dimension of personality.

The elements that move as a result of the hormonal decline, will be in relation to what they have experienced in each and every one of the stages of their lives, and the socio-cultural elements, the premorbid personality, the history of life and its social construction, that shape their personality, ways of thinking and living and therefore the potentialities and psychological resources that will allow them to face the climate in different ways in each woman, as well as the assimilation of aging, make middle-aged women a highly vulnerable group in terms of health (Hernández Sánchez & Forero Bulla, 2011; Orama Díaz, 2000; Artiles, 2007).

All the biological and physiological changes that women go through in middle age are part of the evolution itself in human biology, so they do not in themselves justify a sudden and significant loss of sexual activity, but rather if they imply the readjustment and new projects in the lifestyle that women will need, since no difficulty prevents full pleasure, given that the sexual response is affected more by affective and cognitive factors: fantasies, valuation of the relationship, degree of intimacy, sexual passion, among others (Argote et al., 2009).

In the topics of Anthropology of the Life Cycle, it is referred that in the middle age a self-evaluation is produced where the woman values up to what point she has approached the fulfillment of her goals, it is like that the self-realization will depend on the biography of life, of the route that the person has followed in her

life towards the satisfaction of her needs, to the self-limiting adaptation, to the creative expansion and the maintenance of the internal environment.

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AUTHORS:

Aime Napoles Betancourt
1st degree specialist in Obstetrics and Gynecology Enrique Cabrera National Hospital, Havana, Cuba.

aimenb@infomed.sld.cu

Ada Caridad Alfonso Rodriguez
Cuban Multidisciplinary Society for the Study of Sexuality, Havana Cuba.

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SOCIAL AND COMMUNICATIVE CHANGES THROUGH MEDICAL AND PHARMACEUTICAL ADVERTISING IN BILBAO HISTORICAL NEWSPAPERS, 1885-1936

Cambio sociales y comunicativos a través de la publicidad médica y farmacéutica en la prensa histórica de Bilbao, 1885-1936

Manuel Montero
University of the Basque Country. Spain.
manuel.montero@ehu.eus
Nuria Rodríguez-Martín[16]
University of Malaga. Spain.
nuriarm@uma.es

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Abstract
In the last decades of the 19th and first decades of the 20th century, advertising became a communication tool that contributed to social transformations in the Spanish urban world. This article analyzes the social and communicative changes that occurred in urban Spain during that period through the analysis of the health sector's printed advertisements, published in the main newspapers in Bilbao, including those with the largest circulation at that time. The work tries to establish both the audience to which they were destined, and the innovations that took place in the sector throughout the decades studied.

Keywords: advertising, medicine, health, consumption, Bilbao.

Resumen
En las últimas décadas del siglo XIX y primeras del XX la publicidad se convirtió en una herramienta comunicativa que coadyuvó a las transformaciones sociales en el mundo urbano español. Este artículo analiza los cambios sociales y comunicativos acaecidos en la España urbana de dicho periodo, a través del análisis de los anuncios impresos del sector de la salud, publicados en las principales cabeceras de la prensa de Bilbao, incluyendo las de mayor circulación en esos momentos. El trabajo trata de establecer tanto el público al que iban destinados, como las innovaciones acaecidas en el sector a lo largo de las

16 **Author for correspondence:** Nuria Rodríguez Martín, University of Málaga, nuriarm@uma.es

décadas estudiadas.

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1. INTRODUCTION

Advertising is one of the most characteristic cultural phenomena of contemporary society, a communicative tool that has contributed decisively to the shaping of values, aspirations, lifestyles and social archetypes over the last two centuries (Eguizábal, 2009). Nevertheless, advertisements, in their different media, continue to be a documentary source that is little exploited by Spanish historiography, with exceptions (Marchamalo, 1996; De Andrés del Campo, 2005; Bermejo Barrios, coord., 2005; Balandrón Pazos, Correyero-Ruiz and Villalobos Montes, 2007; Rodríguez Martín, 2008; González Mesa, 2010; Montero, 2011; Rodríguez Martín, 2015).

This article aims to contribute to the study of socio-cultural transformations in the Spanish urban world in the first third of the 20th century by examining a large and representative sample of advertisements for medical and pharmaceutical products, which were disseminated during the last decades of the 19th century and the first ones of the 20th century in several historical headlines published in Bilbao, including those of greater circulation of the period: El *Noticiero Bilbaíno*, El *Liberal*, El *Nervión*, El *Porvenir Vasco*, La *Gaceta del Norte* and *Euzkadi*. Likewise, we have reviewed the announcements of the medicine sector and the pharmacopoeia that appeared in some headers published in the second half of the XIX century, for example Irurac Bac, to try to contextualize and to explain with major rigor and accuracy the changes underwent in the subsequent period.

Methodologically, it should be noted that the analysis focuses, on the one hand, on the evolution of the number of advertisements and advertisers, as well as on the type of medical products and services advertised. Likewise, the claims, texts, typography and commercial images used in the composition of the advertising pieces are analyzed. The research is therefore based on historical printed advertisements and is complemented with other secondary sources, such as specialized magazines and medical publications published during the reference period.

2. THE MEDICAL PANTRY: ORIGINS AND EVOLUTION

Medical remedies were a fundamental part of the domestic pantry in the urban society of the first third of the 20th century. This can be deduced from the health-

related advertisements that was inserted in the press. For a long part of the period, it was the most important group of advertisements although its relative weight diminished in the 1920s, when there was a considerable increase in advertising for branded products in the cosmetic and personal hygiene sectors, and in the food sector. Also an increase of the new consumer products that began to flood the market in that period, such as cars and the first household appliances, as well as stores and leisure and establishments, some of which were very modern, such as dry-cleaning and photo-engraving stores

Until then, the advertising of medical and pharmaceutical products designed the largest advertisements, often using graphics and a language of their own, something unusual in other sectors. His engravings drew two poles, the patient in pain -suffering, resting if he has reached convalescence- and the already cured one, overflowing with health. No spaces in between: either sick or full. In between was the medical action, sometimes miraculous, of believing the advertisements. Medical advertising portrayed extreme situations, health gushing and disease unmitigated -or before they acted- but not two social worlds. Their images always presented a bourgeois physiognomy: in health and in illness. If the size and frequency of advertising insertions corresponded to consumer interest, in many pantries medical remedies had a preferential place. These advertisements reveal the most commercially widespread solutions, although sometimes there remains the doubt of their medical usefulness. The advertising arguments they used bring us closer to the mentality of some urban groups[17].

Here we analyze the medical advertising in the Bilbao press during the late 19th and early 20th centuries in *El Noticiero Bilbaíno, El Liberal, El Nervión, La Gaceta del Norte and Euzkadi*[18]. The most representative of these newspapers was the first one, the one with the greatest continuity, which allows us to trace the evolution between 1885 and 1936 - the announcements of the 19th century serve us to interpret the following years. *The Noticiero Bilbaíno* was the newspaper of reference in Bilbao, it was also the headline that greater number of announcements inserted. At the beginning of twenties, it equaled to him in insertions the medical journal *El Liberal*. On a day chosen as representative, June 30, 1921, medical advertising in Bilbao newspapers was the following, measured in number of published ads:

17 For the case of England, see the work of Barker (2009), in which the author analyzes the boom in medical advertising in the newspapers of Manchester, Liverpool, Leeds and Sheffield between 1760 and 1820, in the context of urban growth of the period, and in relation to the notion of “trust”, to explain the development of new patterns of consumption.

18 The reference work for the study of the Spanish press in this period is the complete study by Seone and Saiz (1996), where data on the foundation, affiliation, print runs and readers of the newspapers in circulation during these years can be consulted, including those that serve as a basis for this work, with the exception of *El Nervión*. The dean of the Bilbao press is *El Noticiero Bilbaíno*, founded in 1875 and in circulation until 1937. The Liberal, an independent republican and *La Gaceta del Norte*, a Catholic, were founded in 1901, and the nationalist *Euzkadi* in 1913. On the Basque press in particular, see, Sáiz Valdivielso (2000) and Urquijo Goitia (2005).

Table 1. *Number of ads in the cited headers, June 30, 1921.*

Header	No. of advertisements
El Noticiero Bilbaíno	38
The Liberal	37
Basque Country	17
El Nervión and the evening	10
Northern Gazette	10

Source: *Own elaboration.*

The comparison between *El Noticiero Bilbaíno* and *El Liberal* only occurred at that time. It did not question the leadership of the first one in advertising medicines, since most of those of the second one were doctors' ads, not medicines'. As we will see, the contrast refers to the social segmentation that took place in advertising. Since the 1880s, medical advertising had a very high presence in the Bilbao press, and in the last two decades of the century, more than 20% of advertisements were in the press. The high presence of these claims in the newspapers of Bilbao corresponds to what was happening in the illustrated press of national diffusion at the end of the nineteenth century (Fernández Poyatos, 2011, p. 121). The greatest growth was experienced in the nineties, when it comfortably exceeded 30 advertisements per issue. Then it stagnated, with ups and downs between 25 and 44 -advertising had a marked seasonal rhythm, so in the continuous series we stick to homogeneous dates-. During the 1930s, it exceeded 20, even in the months when this advertising was decreasing. However, this advertising lost relative importance since it did not follow the expansion of ads when they reached over 200 and close to 300, mostly ads by words.

As it is pointed out above, the medical announcements of the second half of the 19th century are interesting to this study since they allow us to interpret with greater precision the changes that occurred in the following decades. Before the last Carlist war, they already used their own advertising language, not without a certain aggressiveness. They were the most extensive, with detailed explanations of diseases, awarded prizes and the virtues of the medicine. Miracle products predominated, which were presented as a solution to cure a wide range of ailments. The Rob Boyveau Lafecteur, for example, was advertised in 1868 as a remedy to "radically cure skin diseases, insteps, abscesses [sic], cancers, ulcers, degenerated scabies, scrofula, scurvy, losses, etc."[19]. The Pills and Holloway Ointment, on the other hand, ended up as they explained in their advertisements, with "the impurity of the blood", the origin of all illnesses. It is known that they had no active ingredient, except the placebo effect, but they attributed to it all kinds of virtues: "it scatters [sic] every morbid particle, it cools and cleans all the sick parts"[20].

19 Announcement Rob Boyveau-Lafecteur, (1868, May 23) *Irurac bat.*
20 Holloaway Ointment claimed to be an "infallible cure for scrofula, cancers, tumors, leg disorders, joint stiffness, rheumatism, gout, neuralgia, tic-pain and paralysis. Announcement Pills and Ointment Holloway, (1868, March 25) *Irurac bat.*

Advertising techniques based on technical language, large format advertisements, mention of prizes and efficacy against a wide range of diseases, were found in the years after the third Carlist War. They had suggestive names, uncertain content and recurrently used the adjective "depurative". They suggested that the panacea in question purified the body and prevented the appearance of diseases or cured them[21]. Thus, iodized Orive's blackberry syrup from Honduras, "depurative, anti-scrofulous and anti-syphilitic", cured the major and the minor. Or it prevented it, advertising its application for curing the effects of syphilis and "recent and chronic heart attacks, skin eruptions, bone cavities, and finally, it effectively combats all blood vices that usually manifest themselves by disturbances in hearing and sight and heaviness of the body". It used comparative advertising, quoting its competitors, claiming that it surpassed other depurative products such as Rob Lafecteur Rob Claret, "shrouded in the farce of secrecy "[22]. From 1880 onwards, medical advertisements grew dramatically in our sample from 7 per day to 38 in 1900. The main growth occurred in the nineties, coinciding with the settlement of the middle classes in Bilbao. The interest in medical remedies was associated with this area. Most of the medical advertisements were for foreign products -it was the only sector in which this was the case- and they reproduced arguments and graphics used in the United States, Great Britain or France. Their advertising modernization introduced international criteria.

In the last twenty years of the nineteenth century, we can highlight a number of characteristics. In the first place, the maintenance of depuratives and reconstituents as products of obliged presence in the medicine cabinets. It is also noted that they ceased to be of innominate composition, with the ads gathering information on the product on which it was based: ferruginous, phosphate, quinado wines, kola wines, magnesium, meat concentrates or flours... Most of them were presented as the panacea capable of fighting everything, exploiting the idea that diseases appeared due to impurities in the blood. Thus, Bravais Iron fought anemia, chlorosis, weakness, exhaustion..., Bellini's Wine with Cinchona and Columbo, impoverishment of the blood, pale colors, fever[23].... In the same line, the purgatives were also attributed an extraordinary effectiveness[24]. Generics appeared that did not cure everything but they did cure certain types of illnesses, for example, those of the nerves, like the Potassium Bromide Syrup of bitter orange peel, against "epilepsy, hysteria, migraine, St. Vitus' dance, insomnia, convulsions [...] in a word, all nervous disorders.[25] Similarly, there is a tendency to specialize - as a guarantee of effectiveness, advertising strategy or both - which is also confirmed by the appearance of specifics. P. Lamouroux's Breast Syrup and

21 The Ricord Favrot Depurative Syrup, for example, claimed to be indispensable to "completely cure the diseases of the skin and to finish purifying the blood after an anti-syphilitic treatment". As a preventive measure, it was said to serve to avoid "all the accidents that can result from constitutional syphilis". Announcement Ricord Favrot, (1876, August 3) *El Noticiero Bilbaíno.*

22 Announcement Jarabe de zarza de Honduras iodurado de Orive, (1876, August 3) *El Noticiero Bilbaíno.*

23 Announcement Wine of Bellini, (1880, June 12) *El Noticiero Bilbaíno.*

24 Dr. Jayne's Healing Pills, for example, were offered as "a safe purgative," which combated constipation, but also offered to restore "the action of the liver by removing obstructions in the bile duct," as well as to "gradually change stale secretions from the stomach and liver. Announcement Healing Pills by Dr. Jayne, (1880, June 16) *El Noticiero Bilbaíno.*

25 Announcement Jarabe al Bromuro, (1882, December 23) *El Noticiero Bilbaíno.*

Paste cured “diseases of the breast,”[26] and Paterson’s Powders and Pills cured those of the stomach.[27] And there were capsules against contagious diseases[28], eye ointments, some toothpaste products (in powder and paste form).... The most widely advertised were against venereal diseases. These were Raquin capsules, Injectio Brouy or Ricord Favort injections.

A third characteristic is the inclusion of medicinal mineral waters as health ads’ strategy, particularly when the cholera epidemic occurred, also combated by some liquors - aniseed -, wines and some toothpaste. These waters were presented as panaceas. Thus, for example, Agua de Loeches La Margarita claimed to cure “scrofula, herpes, rheumatism, syphilis, ulcers, womb infarctions, white flux, stomach pain...”, apart from being “the cheapest, softest and most effective purgative”[29]. Products related to the hygiene and beauty sector appeared too, such as hair dyes, skin creams, remedies for baldness, depilatories, cosmetic powders or pills for the development of the female breast. Modernity was thus associated with body care and beauty. In addition, and increasingly, these advertisements included doctors. The city was growing and personal knowledge or circles of acquaintances were no longer enough, advertising was necessary. Doctors were advertised as specialists - dentists, chiropodists, nervous and respiratory diseases, “throat, nose and ear”[30], etc. Those of “skin, syphilis, secret and venereal” also had a great relevance.

Some changes in the last years of the century point to the modernization of medical advertising. Specialization was growing and products against coughs, colds and flu were gaining strength. The commercial brands were acquiring a clear attention, guaranteed by a manufacturer. It was frequent that they assured that they served for all respiratory diseases. In 1900, we have located more than 20 brands among cigarettes, powders, candies, pills, inhalers, syrups, fillings.... It also took place a proliferation of products for all kinds of physical ailments: against worms, ointments against piles, corn plasters, stomach elixirs, “health grains against constipation”, liniments, elixirs against insomnia, sandalwood capsules against urinary diseases. etc. Specific attention to each ailment and medicines with well-defined purpose was imposed. Towards 1900, products with scientific support also appeared, such as vaccines, bicarbonate of soda, oxygenated water or analgesics.

3. THE MEDICAL PANTRY: MODERNIZATION

If the press announcements dedicated to health are indication of the medicines in the home pantry, the pantry began to empty in the late 1920s. Since 1930, modernization reduced the commercial supply of medicines and increased the

26 Cough, flu, whooping cough, bronchitis, catarrh”. Announcement Pectoral Syrup by P. Lamouroux, (1880, March 9) *El Noticiero Bilbaíno*

27 “These powders and these antacid and digestive pills cure stomach ailments, lack of appetite, laborious or difficult digestions, acidity, vomiting, nausea, colic”, reads his announcement published in (1878, May 22) *El Noticiero Bilbaíno.*

28 Like the Capsules Mothes, (1880, June 12) *El Noticiero Bilbaíno.*

29 Announcement Agua de Loeches La Margarita, (1880, December 24) *El Noticiero Bilbaíno.*

30 Announcement Consultorio Médico, (1899, August 22) *El Porvenir Vasco.*

presence of specialists. Health treatments faced a rationalization. The remedies that arrived at the publicity had clear characteristics: dedicated to the beauty and depurative or specific of well-established marks. Distrust had been imposed on miracle products, apparently giving a greater role to the doctor in health management. Medical advertisements had reached their peak by 1915.

In the first third of the 20th century, medical advertisements proliferated but modernization was evident in various changes, which began in the 1990s: specific, reformulation of depuratives and/or reconstituents and consolidation of products associated with beauty. In addition, venereal medicines disappeared, which only occasionally reached the advertisements in the new century. It was not because of the lesser presence of these diseases but because of new treatments, which could not be sold in the free market suggested by the advertisements, since they required medical control.

The “depuratives” were no longer the panaceas of the 19th century with uncertain content, and until 1920, they were compulsory in any pantry that read the advertisements. The consulted advertising pieces often mentioned the composition, which was part of the claim, as a suggestion of effectiveness: beef juice, iron iodide, hydrochloric phosphate of lime, phosphate, ferruginous, phosphatine, creosote, concentrate of flours, cereal broth, gofio canario, composed of vegetables...[31]. These were scientifically proved active principles, apart from suggesting very broad, not always credible, effects.

If the composition was missing, the argumentation was very developed. The Paglian Syrup was “truly purifying and refreshing of the blood, of world-wide fame, awarded with the highest honors [sic]”. It warned against counterfeits-true or not, it was a stunt publicity. It concluded: “Paglian syrup is necessary in all families.[32] Something similar happened with Purgante Yer-its chemical composition, which we know, was not suggestive of publicity-and Phoscao, even though the name suggested the combination of phosphates and cocoa.

The mention of the composition removed miraculous packaging, but that did not prevent advertising from ensuring its ability to cure a wide range of diseases. Pinedo’s kola wine -a pharmacist from Bilbao- was a “nutritive tonic”, composed of kola, coca, cocoa and guarana, and fought chlorosis, anemia, rickets, nervous, cardiac and generic diseases. Botta & Baltá glycerophosphates also combated “rickets, lack of organic development, chlorosis, anemia and pale colors[33]. This argument was based on the idea, inherited from the previous century, when “blood poverty” was the prelude to the disease. If it was eliminated, weakness would end, avoiding this way “premature old age and cerebral anemia”. It did not matter if it was iron iodide or hydrochloric phosphate of lime; the chemical composition was similar to the depuratives with the miraculous products of the

31 This is how Rob Xarrié was announced, “purifying the blood” and “radically curing herpes, scrofula and other skin conditions”, wide and diverse effects that contrast with the precariousness of the announcement in terms of its vegetable composition.

32 The name under which it was marketed alluded to the counterfeits “True Paglian Syrup”, and “Without such a mark it must be rejected because it is a harmful imitation”. Announcement Jarabe Plagiano, (1910, December 24) *El Noticiero Bilbaíno.*

33 Advertisement Glycerophosphates Botta&Baltá, (1900, September 16) E*l Noticiero Bilbaíno.*

previous century: modernity was in scientific resonant names, not in the limitation of its effects. From a publicity perspective.

According to the medical literature of the time, such products had active principles that acted positively on health but not with the effectiveness that could be deduced from the advertising. For example, lime phosphate was administered to children in its pure form and was used as a basis for anti-rahic and antidiarrheal treatments[34]. According to the announcement of the Cases Solution, it was "the most powerful reconstituent for general weakness cases, chlorosis, rickets, consumption, and lack of appetite[35]. Previously manufactured products in small doses by pharmacists were mass marketed. "Iron iodide combined with a nutritive and corroborating substance can produce cures even in the most serious cases of annihilation" (De Bruc, 1873, p. 187). Sometimes, it is intuited that the sensation of effectiveness had another origin. In 1925, the Elixir Vitoserum Oliver Rodés was sold for states of general weakness, neurasthenia, mental fatigue and anemia. It did not say the composition, but we know that it contained sodium glycerophosphate, an effective nutritional supplement. It also included stovaine, an analgesic used as a substitute for cocaine, as well as strychnine cacodilate, made from an alkaloid. It is likely that its euphoric effects accentuated the feeling of the reconstituent effectiveness. Some advertisements warned that such a depurative did not contain opium or opiates and perhaps pointed to the exception.

If the product was nationally manufactured, the ad was made so that this would not diminish its virtues. In fact, it tended to accentuate them, as was the case with the Cases Solution. Ortega Peptone Wine -after Catillon Peptone Wine- had them in the highest degree: it was the best tonic and nutritive for convalescents and weak people, and it fought against inappetence, bad digestions, anemia, consumption, rickets, etc. Elosegui's phosphate iron iodide fortified lymphatic temperaments, was anti-neurastenic, reconstituted the osseo-muscular system and repaired blood cells. "It quickly cured lymphatism, chlorosis, anemia, loss of appetite, pale chlorine, difficult menstruation and general weakness. The forcefulness against a wide spectrum of evils did not detract from its credibility, but rather accentuated it.

The depuratives of great effects were scarce but the Pautauberge Solution was still announced in the twenties, with the described scheme: unquestionable chemical composition, "creosote and lime hydrophosphate", and results far beyond what medical experimentation assured. Being a nutritional supplement, it became "a sovereign remedy against colds, chronic bronchitis, flu, rickets and scrofula". Purgante Yer, Deschiens hemoglobin, Falières phosphatine, etc. were also sold. On the other hand, they only occasionally appeared in advertising of the thirties, when the reconstituents were stuck, in our sample, to Dr. Falp's Vigor vegetable broth, San Roque Jerez, Ona wine and Phoscao. The urban groups were abandoning the panaceas of great promises. It might have contributed the greater rigor of the Pharmaceutical Registry of 1919 (González Bueno et al.,

34 "Whenever the sugeto [sic] is thin and weak, this medicine will do. The Medical Pavilion, 1871, p. 367

35 It was nationally produced, and it was assured that it replaced with advantage the Coirre Solution, which had been awarded in several exhibitions and which was "the only one approved and recommended by the Royal Academy of Medicine and other medical corporations". Announcement Solución Cases, (1905, February 24) *El Noticiero Bilbaíno*

1995; Suñé Arbussa & Valverde López, 1985).

Judging by advertising continuity, in the first two decades of the 20th century, some purifying or reconstituting agents were a must in the medicine cabinets. The Pills and Blancard's Syrup - prestigious since the 19th century, composed by iron iodide, were still used against anemia -, the Pautauberge Solution, the Paglian Syrup, the Aroud Wine - with iron and quinine, the Deschienes Hemoglobin Syrup, Falières Phosphatine - a nutritional supplement for children - stood out, Brandeth pills - of great American success, had a strictly vegetable composition, "always effective cure chronic constipation"... and diverse digestive ailments, besides purifying the blood - and Ambrina, announced for the arthritic ones, fought a wide range of ailments, as it specified: "chilblains, burns, varicose ulcers, rheumatism, gout..."[36]

Figure 1. *Announcement of Saiz de Carlos' Stomach Elixir*
Source: *(1922, May 1) The Nervion and the afternoon*

The main novelty of the first third of the 20th century was the proliferation of specifics. There were dozens and only some brands survived for several years: Saiz de Carlos' Stomach Elixir, Dr. Artaza's Cephalin, Henri Mure Syrup, Espic Cigarettes and Sanix Laxative, among them. Perhaps, some brands were no longer sold because of their side effects. Sometimes, many products dedicated to the same disease were announced to disappear later, perhaps by occasional increase in competition. In the first decade of the 20th century, products related to respiratory diseases burst in. Most were sold for coughs and some for various

36 Announcement Ambrina, *El Noticiero Bilbaíno*, 1918. Its advertising arguments referred to the fact that it was a "new product", it was used "with great success", it treated a variety of ailments and was used by various foreign bodies, the first three of which were important in the middle of the European War: "Employed by the French Military Health Service, the English Admiralty, the Italian Navy.

conditions. The phenolic syrup of Vial, had “safe effectiveness in cough, cold, catarrh, bronchitis, flu, hoarseness. Pills that were offered only for the cough, and some for the breath were more habitual, like the pills “chloro-potassium with cumin and menthol of the Pinedo”, made in Bilbao by the pharmacy of the same name, whose announcements replaced the cumin by the cocaine in 1905.

Figure 2. *Morelló Pills for respiratory diseases announcement.*
Source: *(1911, January 24) El Noticiero Bilbaíno.*

Another novelty that came with the century: the specifics related to nervous diseases. Dr. Artaza’s Cefalina was presented as “the most effective and harmless of all known analgesics” and became a regular feature in the pages of newspapers. The same thing happened with Henry Mure Syrup. Its ads did not specify its composition but it contained calcium bromide, a relaxant used by then in this kind of diseases. Following the texts with which it was advertised[37], it was a cure-all for the nervous system, since it offered the “certain cure” for epilepsy, convulsions, vertigo, fainting, etc. There were also the Elixir Yvon (epilepsy, insomnia, nervous diseases) and the Nervioalmon, against neurasthenia, which was presented as a depurative that treated many different ailments[38]. This product was successful, as it appeared in advertising in 1905 and we have been able to verify that it was still being marketed in 1945. We also found other specific ones.

In 1905, Kisley Wosmahe was announced, a product that fought the “genital weakness of men” and the “sterility of women” although it did not explain how it served such different objectives. The eventual buyer would understand well what he was referring to since the announcement stopped at sexual weakness “caused by the struggle of life, sorrows, abuses of Venus or of solitary vices, excessive studies, etc.”[39]. It was presented as a kind of natural cure but it was either not effective or had unwanted side effects, as it disappeared immediately from Spanish advertising. Or it might be that the story did not please Bilbao readership.

37 Epilepsy-history, hysterosis, epilepsy, St. Victor’s dance, diseases of the brain and spinal cord, sugar diabetes, convulsions, dizziness, nervous breakdowns, headaches, fainting, cerebral congestion, spermatorrhea. In addition to its effectiveness even with diseases not necessarily related to nerves, the advertising arguments mentioned the years of “proven success of experience of the Hospitals of Paris” and the existence of counterfeits.

38 “Nervous. Life is not possible like this. Neurasthenia can be cured... with NERVIONALMON, however old the disease may be”. The description was similar to that of a depurative, although the enrichment of blood was not mentioned: “It awakens appetite, facilitates sleep and digestion, and regulates the stomach”

39 Impotence. Announcement, *El Noticiero Bilbaíno*, 1905.

Digestive diseases had their own treatment. The most important was Saiz de Carlos' stomach elixir, it was the most widely considered Spanish medicine, which was widely accepted at the time. This elixir was a creation of the pharmacist of the same name, who became a deputy in Parliament. His excellent publicity support[40] conveyed the acceptance, with statements such as: "there will hardly be a doctor who has not prescribed Saiz de Carlos' stomach elixir in most of his illnesses", sometimes accompanied by a modern graphic design; the most popular represented an old man who ate with satisfaction. Although it did not have the same success, the Sanchez Stomach Solution is equally interesting, with large format ads in 1910. It was created by a pharmacist from Almeria and advertised as "the latest advance in medical science. The renovation of the stomach"[41]. There were more medications in the specialty, such as the Stomach Phoenix or Dr. Vicente's Digestonic, also announced as a panacea.

Rheumatism was soon the subject of specifics, since in 1900, Dr. Laville's Liqueur, which was a great success in France, was announced, but it was around 1915 when the medicines against rheumatism proliferated. Ads claimed that they attacked excess uric acid and offered drastic cures. There was Urticure, for "Wasting away with joint pains"[42] and Gotol, which besides rheumatism relieved neuralgia, headaches and headaches. Their publicity was short living. More successful was the Anti-uric Weis, of German origin, the first to be authorized in Spain when the register was established. It was presented as "harmless, scientific, effective and radical treatment". It included the frequent note that it was not harmful. And the range that this medicine faced was wide, even though it belonged to the same family: "it not only relieves but also cures quickly rheumatism, gout, nephritic colic, sciatica and stones".

Some specific ones were aimed at children, in particular at feeding. With or without therapeutic virtues, they offered food supplements. There were previously isolated announcements of this type but from 1915 onwards, we find them on a regular basis. The Glaxo, advertised as "the wet nurse of the 20th century", which offered artificial milk from cow's milk, stood out. Advertising for this type of food increased from the 1920s onwards, and its marketing reached a larger public, with Glaxo being the first pharmaceutical brand to achieve great success (VV. AA., 2013, 109).

At that time, Rakul arrived, "the only true food for children", of ephemeral presence, and Nestle Flour, "complete food for children"[43]. Also Lactofitina, announced with the text: "Ask these children what they owe their health and beauty to and they will answer you: LACTOFITINA", which was accompanied by a graphic that shows seven children with abundant hair and a look that today we would understand as being sickly, but which should represent the freshness of children in the bourgeois

40 Saiz de Carlos stands out as one of the most widely advertised brands in Spain during the first third of the 20th century, with large advertisements made by important agencies of the time, such as the Prado Agency, distributed in the main national newspapers and illustrated magazines.
41 Advertisement for Solución Estomacal Sánchez, (1910, May 23) *El Noticiero Bilbaíno.*
42 In the advertising example, after several years of suffering, Urticure's intake had put an end to the problems. It made "the cause of rheumatism, sciatica and grit disappear.
43 In the advertising example, after several years of suffering, Urticure's intake had put an end to the problems. It made "the cause of rheumatism, sciatica and grit disappear.

imagination, since the clothing left no doubt about the represented social class. There were also specifics for women. More abundant during the 1920s, we find them already in the 1900 ads, among them, the Apiolina Chapoteaut is found, which reproduced at that time the French ad, both in the graphics and in the message, according to which it "regularizes the monthly flow". The irrigations of Dr. Valley and those of Ruiz Zorrilla cured matrix diseases twenty years later. There were many specifics for various diseases, which occasionally appeared in our sample: corn plasters -Callivore Marthaud, the Callicide Laurel-, anti-diabetics -The Rishi, infallible and vegetal-, laxatives -Somonte fig syrup, Sanix-, against meningitis -Meningitine from Doctor Fulgencio de Jorge- and, since 1920, medicines against scabies, among them we find the Antisárnico Martí -"its imitations are expensive, dangerous and reek of latrine"- and the Sulfureto Caballero. Remedies against venereal diseases deserve a separate mention. At the end of the nineteenth century, this advertisements were common but with the arrival of the new century they almost disappeared. Occasionally, we find some products – like the Koch capsules - that "cure in two days the recent secret blenorrágico flows and modify the chronic ones", but the automedication in diseases was disappearing with the new treatments.

Beauty articles, presented as medicines, had their own stamp. We find them already in 1900, in the offer of Pomada de Orive, for example, advertised for breast cracks. These products had continuity, however, their presence was scarce if we compare the weight of these advertisements in the Bilbao newspapers with that in the illustrated magazines. One example: one day at the end of May 1905, *El Noticiario Bilbaíno* published three advertisements for two products, both related to baldness -the Prodigious Ointment of Mr. Vega and the Zephyr of Oriente-Lillo-. The weekly *Blanco y Negro* advertised eight brands. Two of them were related to hair, Salt Water -"No more white hair"- and Royal Windsor, "the famous hair restorer", which prevented hair loss, gave back to gray hair its natural color and prevented dandruff, it was announced by the graphic of a woman with very abundant hair. There was the "Parfum à la mode" Le Trefle, the Krema Kalodermina, advertised as "unsurpassed for preserving the beauty of the skin", the Dentrifique Glycerine, the Crème Simon, which was used for the "daily toilette", and the Essence Karistèle, which was advertised reproducing the packaging and did not indicate what it consisted of. The beauty came from France and, apart from the articles dedicated to hair, it was associated with skin care and perfumes. These advertisements were mainly aimed at a female audience.

This was not the case for beauty related products published in the local press. La Pomada prodigiosa de Vega was advertised with a classic slogan -"No more baldness"- and an explanation with a scientific air. The specific product in question destroyed "the atrophy of the hair follicle and bulb", with which hair and beard grew. The Zephyr of Orient Lillo did not say how he acted, but he did say that he made "hair, beard, moustache and eyebrows grow again and again", avoiding gray hair and curing all scalp diseases. His slogans were basic: "Baldness died!" or "He who is bald is because he wants to be". Other advertising resources were used, such as the endorsement of "infinite medical eminences" and the use by "millions of people". Likewise, a prize if they found a better product.

In the newspapers, hair-related problems generated most of the ads. Flor de Oro Water, "which cleans and tones the hair", stimulated the functioning of the capillary vessels and cured diseases. Their advertising argument was not sophisticated: "laziness is almost always the reason why there are so many heads, either bald or with plaques or dandruff". The Boyra Lotion produced similar effects and the Tintura Mora dyed the gray hair; its advertisement, published during the years of the European war, evoked it in a peculiar versification: "It doesn't damage or dirty. With peace, so desired, will come the fever of invention, but nothing will be invented as the Dye Moorish.

Since the end of the 1910s, women's articles had returned to the local press. The Agua Oriental ads continued, to obtain "in a short time a beautiful well developed and hard breast of more seductive beauty, which constitute the best enchantment of the woman". And then, it came the depilatory cravings, sometimes with categorical complaints: "Hairy, the Vasconcel Depilatory in Paris" is "the only effective and practical remedy", which managed to weaken the hair's growth "until it finally stopped".[44] Once the confidence in drastic remedies was over, the best hygiene was the norm. In 1920, the Coallar Saponine Le Beuf fortified the hair, cleaned the mouth and strengthened the gums. A few years later, Floroliva arrived, which was good for "fine clothes, toiletries and baths"; and Richelet toilet soap not only made "all redness and roughness disappear", but also ensured "well-being and rest, it represents the maximum cleanliness, and is at the same time a beauty cure", in a 1928 advertisement, which also presented a sophisticated graphic presentation, with the representation of a couple in a romantic attitude wrapped in a heart on whose base a drawing of the product appeared[45]. The advertising messages of these articles, as we can see, were often halfway between the promotion of aesthetics and health, thus, placing them in an intermediate category between the pharmacopoeia and the beauty and personal care sectors.

In the 1920s, the number of ads dedicated to health decreased but not the number of doctors. In 1915, specialists in digestive and childbirth teachers appeared, always with various offers and specialists in the digestive system. Occasionally, we also find advertisements for "Herniates" and for chiropodists. In 1930, we counted 18 advertisements of this type, while it only reached 13 once previously. The doctors advertised themselves explaining their specialty. We can group them in gynecologists, "Throat, nose, ears", respiratory, dentists, children and venereal. Over the years, the venereal specialists had continuity and more presence. An announcement was repeated for years. The 1918 announcement read: "Venereal and Syphilis Specialist. With forty-six years of practice. Don Francisco Lopez, a senior assistant doctor who was at the Specialty Hospital in Madrid"[46]. He updated the years of experience and changed the name of the hospital, which until 1905 was the Syphilitic Hospital in Madrid, perhaps to sweeten the expression. Doctor Bustinza's and Doctor Salaverri's also had continuity. From 1920 onwards, new anti-syphilitic treatments were advertised. The Clínica Ribera applied them and announced Salvarsan (606) and Neosalvarsan (914), names and numbers that

44 Announcement of Vasconcel Waxing, (1919, May 26) *El Liberal.*

45 Advertisement Richelet Soap, (1928, September 11) *El Liberal.*

46 Likewise, he offered "quick cures: ringworm, herpes, ear drainage, eye ulcers, rashes, crooked eyes, womb diseases and childbirth. He does all kinds of cures. He attends the houses".

were well known at the time. Salvarsan or saving arsenic had been obtained in 1910 (Fresquet Febrer, 2011).

There was another novelty, the appearance of announcements of clinics and medical cabinets. Dr. Goti's medical cabinet was treating nervous, stomach and venereal diseases. The Medical Cabinet of Electricity was dedicated to hair removal, but also to impotence, anemia, neuralgia, epilepsy, neurasthenia "and the evils of the brain, throat, chest, womb and rectum". The Dental Clinic, the Dental Institute and the Modern Polyclinic reflected this trend. Otherwise, the doctors' advertisements were crude, but sometimes the claim included a reference to some prestigious institution. Dr. Carrasco was Director of the Civil Hospital and his position in the public institution supported his private activity. In his announcements, Dr. Salaverri presented himself as "head of venereal consultation at the Holy Civil Hospital", Antonio Rubio claimed he was "professor at the Rubio Institute", Juanita announced herself as "ex-midwife of the Maternity Hospital of Vizcaya"; De la Riva as "ex-head physician of the Royal Sanatorium of Guadarrama", Dr. Bustamante was "ex-professor of the Ledo Anti-Tuberculosis Dispensary" and Manuel de Echeverri Aldecoa was in turn "doctor at the Zaldívar Asylum". In the advertisements, modernity was associated with new medical instruments, such as sphygmographs, microscopes and X-ray machines. Also the use of electricity and ozone, which were given extraordinary healing properties. It was not in Bilbao but in Madrid where it was also announced the Radiumtherapy Institute of Madrid, for "cancerous diseases", "infiltrating the X-rays and the Radium and working with them as if it were an intelligent scalpel".

The comparison of medical advertising in different newspapers provides another very interesting piece of information. During the first third of the century, there was a social fragmentation of advertising, at least in health-related ads. The difference occurred between the republican-socialist newspaper *El Liberal* and the other newspapers that, with their doctrinal differences, were addressed to middle classes, as opposed to the more humble profile of the readers of the first one. The differences in the ads are not therefore produced by virtue of ideology but by virtue of the social groups to which the newspaper is addressed.

The medical ads in *Euskadi, La Gaceta del Norte* and *El Nervión* are very similar to those in *El Noticiero Bilbaíno*, without specific bias. The day chosen for the comparison is June 30, 1921 (table 1). *El Noticiero* published 14 ads for depuratives and specifics -Liquid Hemoglobin, Brandeth Pills, Depurative Fuster, Stomach Elixirs-, 4 for beauty -Agua Argentina, Floralia Soap, Boyra Lotion, 8 for doctors and 1 with the Balamaseda Injection for "Secret Diseases", among other less significant products. The rest of the "bourgeois" newspapers presented a very similar profile. *Euskadi*, published 10 depuratives and specifics -the North American brand Eno Fruit Salt to "purify the blood", Lactofitin, cough lozenges and laxatives-, a couple of beauty articles -destined to the skin and to cover the gray hair- and 5 doctors. In *La Gaceta del Norte*, we found 3 beauty ads -Boyra lotion or Saltratos for sensitive feet, which used the artist Raquel Meller as advertising, the reconstituent Vino Bayard, 1 antiepiletic syrup and 2 doctors. The Nervión was less advertised: added to 4 doctors, 1 stomach elixir, 1 cough drop, 1 laxative and the Elixir Callol, which "gives strength, vigour and youth".

The range of advertisements and the arguments used in their texts and claims were similar in all four newspapers, whose main recipients were the urban middle classes. *The Liberal newspaper* had a very different range. We do not find here any beauty or spa articles. We do find here a dozen of depuratives and specifics that do not present great differences with those that used to appear in the other newspapers, including a ferruginous presented as “blood regenerator” and Dr. Soivré’s medicines for the urinary tract. Only a more precise definition of the diseases can be noted, with a wider range: skin diseases, anti-syphilitic, laxatives and piles remedies, gastric pregnancy, strokes, arteriosclerosis, hypertension, tuberculosis, eye diseases, hernias, bronchitis, consumption and scabies.

But the main difference was found in the large number of doctors’ advertising. That day 25 did, including 7 midwives. Almost half, 12, included in the announcement allusions to venereal diseases: “urinary tract, secret, skin,” “painless injections of 914,” “syphilis-venereal-skin,” “treatment of syphilis by neo save”. Perhaps venereal diseases had been less well controlled in the poorer sectors, to whom the new remedies based on arsphenamine and new technologies were aimed, which required specific medical control.

Figure 3. *Dr. Soivré’s Medication Announcement.*
Source: *(1921, June 30) The Liberal.*

The attention to venereal diseases was, therefore, the specific feature of the newspaper El Liberal and, together with the absence of beauty products, it allows us to talk about a certain social segmentation of advertising, which would agree with the different needs generated by health care. The differentiation occurred since 1918 because before that time we did not find in *El Liberal* such a marked bias. In 1916, its profile was similar to that of *El Noticiero Bilbaíno*: Vichy waters, La Muela spa, two opticians, cough drops, quinine against flu and several doctors, of which three were dedicated to venereal diseases. In the 14 health-related announcements that were published in 1920 around the same time, 7 were already doctors specializing in these diseases, including a Syphilotherapy Clinic, which offered "exclusive treatment of syphilis by the Neo-Salvarsan Erlich, which comes from German state deposits". In addition, two medicines had some use against syphilis and blennorrhagia. Therefore, most of this publicity was related to venereal ones. There were also two ads for midwives and one for "ladies' health". Thus, the medical bias of *El Liberal*, a projection of social segmentation, had already been established.

4. CONCLUSIONS

In an overview, we have seen clear changes in the domestic medicine cabinet reflected in the ads, urban modernization from the point of view of health care. We have seen the decline in advertising for medical products that took place during the 1920s and, even more, during the following decade. At the same time, advertisements by medical professionals, clinics and medical cabinets increased. Everything indicates that self-medication was reduced.

Since the beginning of the 20th century, there has been a reduction in the supply of purifiers and restorative agents, which, according to advertisements, were used for very different diseases. Therefore, the mentality changed, it progressively stopped believing in panaceas. Surely, it was influenced by a greater caution before the collateral effects of these products, as well as the fact that they were discarding those that contained narcotics. The success of large-format ads for miracle products - of impossible effectiveness - could not be due only to the effectiveness of the propaganda slogan. Expensive and continuous advertisements' maintenance would not be justified either by their supposed purifying or reconstituting functions, not verifiable in the short term. Their success had another, more immediate reason: they included opiates, coca or other drugs. They would not "purify the blood," but they would provoke sensations that could be equated with better health.

Such products did not usually publish their composition, which used to be declared secret formulas. Even at the beginning of the century, we find the claim that they contained cocaine in the advertisements of some products; and in some cases, we know of the presence of other drugs. Also in some others, it was assured: "it does not contain opium or opiates", "it does not cause any damage". So it was not just the mentality. There was greater awareness of the damage that such products could produce and a new pharmaceutical registry that limited them. The argument that there was a great effect in purifying the blood did survive. The

confidence in the ultimate goodness of a single product did not disappear.
The proliferation of specific and new treatments also characterizes the maturation of the middle classes in medical consumption. New treatments were presented as scientific or associated with new technologies, such as electricity, x-rays, radiotherapy or new anti-syphilitic techniques. It is also worth mentioning the presence of beauty-related products, beauty was presented as a consequence of hygiene and it was medical endorsed.

Finally, we have also noted that the social segmentation of medical advertisements was visible in the greater presence of remedies against venereal diseases in the press aimed at the most humble groups. Beauty-related products were scarce while specific offers were made against a very wide range of diseases. In short, we have shown the relationship between social changes and communicative changes in the framework of urban growth in Spain in the first third of the 20th century, through the analysis of advertisements in the medical and pharmacopoeia sector. Likewise, the work contributes to a better understanding of the transformations of the uses and customs in the Spanish urban society of the period.

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AUTHORS:

Manuel Montero
Professor of Contemporary History and former Rector of the University of the Basque Country. He is director of the Research Group on Historical Demography and Urban History. He is the author, among others, of *El sueño de la libertad. Basque Mosaic of the Years of Terror*, Oviedo, Nobel Editions, 2018 (24th International Jovellanos Essay Prize).

Orcid ID: https://orcid.org/0000-0002-1905-9323

Nuria Rodriguez-Martin
Doctor hired by the University of Malaga. She has a degree in Information Sciences and a Doctorate in History from the UCM. She has been a Reader of Spanish at the University Paris-Sorbonne and Researcher Juan de la Cierva at the University of the Basque Country

Orcid ID: https://orcid.org/0000-0003-0179-7392

Academia.edu:
https://uma.academia.edu/NuriaRodr%C3%ADguezMart%C3%ADn

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SPECIFICATION OF A MODEL FOR THE STUDY OF UTILITY PERCEPTION

Especificación de un modelo para el estudio de la percepción de utilidad

José Alfonso Aguilar-Fuentes[47]
Technological University of Mexico.
alfonsoaf@hotmail.com
Cruz García-Lirios
Autonomous University of the State of Mexico. México.
cgarcial213@profesor.uaemex.mx
Gilberto Bermúdez-Ruiz
Anahuac University, Coyoacán Campus. Mexico.
gibe_gil@hotmail.com
Minerva Isabel Pérez-Ortega
University of Cantabria, Spain.
minervaisabel.perez@unican.es
Eyder Bolivar-Mojica
Luis Amigó Catholic University, Colombia.
Sofía López de Nava Tapia
National Autonomous University of Mexico. Mexico.
bundesnanza@icloud.com
Francisco Espinoza-Morales
University of Sonora, Navojoa campus. Mexico.
francisco.espinozamo@unison.mx
Tirso Javier Hernández-Gracia
Autonomous University of Hidalgo State. México.
thernan@uaeh.edu.mx
Gabriel Pérez-Crisanto
Metropolitan Autonomous University Mexico.
gperezc@xoc.uam.mx

Abstract

A model is a data management, production and transfer system organized in explanatory trends of past, current and future relationships. The emphasis on each suggests decision making and strategy execution. The objective of this work was to specify a model for of the perception of utility. An exploratory and cross-sectional study was conducted with a selection of 186 students from a public university in central Mexico, considering their participation in the system of professional practices and social service in local organizations. The validity of the instrument that found a one dimensional variable that explained 43% of

47 **Author for correspondence:** José Alfonso Aguilar-Fuentes alfonsoaf@hotmail.com

the variance was established, but the research design limited the results to the research scenario, suggesting the extension of the work

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1. INTRODUCTION

Globalization implies less social equality and greater freedom in the individual. This imbalance characterizes the most globalized and localized liberal democracies. These open societies that hold individuals accountable by disintegrating their groups, their communities, their societies and their present and future cultures (Martínez et al., 2019).

The process of financial globalization and community location is gestated through the use of technology. In the case of the Internet connection from root servers, the United States, Japan, Holland and Sweden are the main nodes. Japan is the nation with the highest connection speed (61.0 mbps), Sweden ranks fourth (18.2 mbps), Holland is sixth (8.8 mbps) and the United States occupies tenth place (4 .8 mbps).

In economically emerging countries, the benefits of information communication technologies (ICT) have only been exploited by organizations for insertion into the global market. In contrast, in the communities of these countries where ingrained localization processes are developed, ICT have not been a factor of individual growth and much less of community development (Carreón et al., 2019).

Indeed, economic and technological globalization has only benefited corporations by widening the economic and digital divide with the communities (Carreón et al., 2019). This process of globalization, in its social dimension, implies the decision-making of groups, communities, unions, unions, organizations and corporations based on ICT. Such entities are transformed into networks and power flows that first compete and then monopolize the market (see the scheme).

This is how the objective of the present work was to specify a model for the study of the perception of utility, considering the dimensions that literature contributes withrespect to the acceptance of technology, the propensity to information and the motivation for achievement.

2. THEORY OF UTILITY PERCEPTION

The economic, technological and social consequences of globalization are described to propose the Theory of Mobile Consumption that explains the consumption of products and services through mobile telephony. A model is presented in which it is included and demonstrates that the perception of utility is the determinant of the use of mobile Internet (Villegas et al., 2019).

Based on the above scenario, it is proposed that individuals, being immersed in information communication flows and networks, become potential consumers when acquiring a mobile phone. Precisely, in the following section, the Mobile Consumption Theory (TCM) is explained, which explains the determinants of consumption through a mobile phone (Villegas et al., 2019).

The Theory of Mobile Consumption states that individuals carry out their purchases through a mobile phone based on their utilitarian perceptions and purchase decisions. The TCM maintains that people consume basic products and services through the consumption of secondary products. Individuals when buying a mobile phone or any product and technological information communication service, are exposed to the consumption of basic products and services that are advertised and sold through the aforementioned technologies (Carreón, 2019). Therefore, the TCM argues that it is the perceptions of utility, innovation and efficiency that determine the consumption of products and services that are advertised and sold through the mobile phone.

TCM provides the indirect effect of perception of a technological innovation on the consumption of products and services via said mobile technology (Hernandez et al., 2019). It explains the relationship between ICT with individuals saturated with multiple activities, people who buy and people who work as supervisors or vendors. The TCM predicts the use of the mobile Internet from a cognitive process that begins perceptually and ends behaviorally. From the TCM, the study detailed below was carried out.

3. STUDIES OF THE PERCEPTION OF UTILITY

In the process of converting human capital into intangible assets for organizations, the perception of utility explains the intensive use of information and communication technologies provided that organizations adopt management, production and knowledge transfer systems (Carreón et al., 2019).

It is a process in which the formation of intellectual capital assimilates knowledge, knowledge, experiences and skills to achieve objectives and goals through specific protocols for information processing (Carreón, et al., 2019).

The perception of utility is the central axis of the knowledge management agenda because it translates statistical data into meanings of commitment, entrepreneurship and innovation, as well as generates new protocols for information processing whenever the objectives and goals are subject to the climate of tasks, supports and relationships between stakeholders (García et al., 2019).

4. MODEL FOR THE STUDY OF UTILITY PERCEPTION

The TCM raises three explanations of the consumption of products and services through the mobile phone.

The first trajectory includes: perception of innovation è propensity to consumption è use of mobile Internet. Such is the case of people who acquire a sophisticated and multifunctional mobile phone that exposes them and leads them to accept and consume seasonal promotions. However, this type of consumer can acquire a phone only for some function (Villegas, 2019). It may happen that the consumer buys a phone for its functions of playback of files digitized in mp3 and is not interested in seasonal promotions. It can be inferred that technological innovation translated into multiple functions is an added value for users that can lead to secondary consumption.

The second path includes: perception of innovation è perception of utility è propensity to consume è use of mobile Internet. In addition to analyzing the impact of technological innovations on human behavior, the second path explains the association between an innovation and its usefulness as the determinants of mobile decision and consumption. The perception of utility being a variable that indicates the selection and categorization of objects, influences consumption decisions and the subsequent purchase of a product or service (García et al., 2018). A person who buys a mobile phone with the latest technology differs from the consumer who seeks secondary benefits derived from the use of technologies. It is a potential consumer who acquires some technology to consume products and services exclusive to the network or elite flow of communication information. A person looking for mp3 files only available in virtual stores will buy a mobile phone connected to the virtual store.

The third route includes: perception of innovation è perception of efficiency è propensity to consumption è use of mobile Internet. The behavior of the consumer, explained by this third route, denotes a person engaged in the purchase and sale of products and services. Precisely, the perception of efficiency suggests the use of a technology for its competitive advantages rather than for its comparative advantages. A sales supervisor will acquire a phone with multiple functions as long as he perceives that these functions will allow him to supervise his salesmen. Do perceptions of the level of utility and the degree of innovation have an indirect, positive and significant effect on the level of use?

5. METHOD

There were 186 students selected from the Metropolitan Autonomous University. 65 men (25 studied in CBI, 26 in CBS and 14 in CSH) and 121 women (22 in CBI, 59 in CBS and 40 in CSH)

The perception of the level of utility. It is the evaluative, attitudinal and motivational expectation of greater benefits and lower costs around the consumption of a product or service.

The perception of the degree of efficiency. It is the handling of a product and / or service for consumption purposes.

The level of use. It is the time of purchase of a product or acquisition of a service. Perceptions of the level of utility and the degree of innovation have an indirect, positive and significant effect on the level of use.

In the first phase, the reliability and validity of the instruments that measured the five variables was built and established.

In the second phase, the likelihood of adjusting indirect and direct, negative and positive, and significant causal relationships between the study variables was modeled and demonstrated.

From the Mobile Consumption Theory, twelve indicators were established that configured three dimensions for the five variables of the measurement model that were subjected to a confirmatory factor analysis of the main components with varimax rotation and maximum likelihood. The results reject the hypothesis of factorial unidimensionality for three variables of the measurement model.

Scale of the perception of the level of utility. 12 items with response options from “strongly disagree” to “strongly agree”. The table shows the convergence (indicated by the factor weight) of the reagents with respect to the factor.

Scale of the perception of the degree of efficiency. 12 items with response options from “never” to “always”. Considering the factor weights of the perceptual variable of self-efficiency, the convergence of four reagents is demonstrated.

Scale of the level of use. 12 items with response options from “less than ten minutes” to “more than twenty minutes.

The psychometric properties of the instruments that measure the study variables are detailed in the table where it can be seen that they meet the requirements for multivariable analysis.

During the first week of the spring quarter of 2006 at the UAM-I library, students were asked how often they used their phone to download images, sounds and speeches to select the ideal sample. Subsequently, the questionnaire was provided indicating a response time of 30 minutes to answer it.

6. RESULTS

From the Mobile Consumption Theory a new model was designed with the variables that met the criteria of reliability (alpha greater than .60) and validity (factorial weight greater than .300).

Multiple linear regressions were calculated to establish the determinants of the dependent variable and the non-linear relationship between independent

variables. The scheme shows that the perception factor of academic utility is the main determinant of the level factor of Internet use for academic purposes.

This finding indicates a modification of the TCM measurement model by proposing a direct, positive and significant effect ($\beta = .30$; $p < .05$) of the utility factor on the use for academic purposes. That is, a person looking to buy for example a book, could get it if there was a virtual library connected to the mobile phone.

Similar reasoning would imply the perception factor of self-efficiency as a determinant of academic mobile use. An individual looking for academic information could find it through his mobile phone. However, the causal relationship lacking the required significance suggests the exclusion of the variable.

The strength of association ($r = .07$; $p < .05$) between independent variables indicates its spurious implication.

Finally, the level of mobile Internet use for academic purposes is explained by the two independent variables in 22 percent of their variability ($R 2 = .22$).

It can be seen that from the original measurement model only two variables maintain a causal relationship that selects them for inclusion in another measurement model. These consequences and implications are discussed below.

7. DISCUSSION

The perception of utility has been the fundamental construct in the models developed to predict the behavior of a consumer on the Internet. This research has shown that the academic factor of said perception determines another factor referred to mobile use for academic purposes.

However, the relationship between the perception of utility with other variables such as the perception of self-efficiency, reported by other studies, has been spurious. This means that the variables could belong to different cognitive processes. The perception of utility could belong to a set of affective variables while the perception of self-efficiency could belong to a group of rational variables.

This would explain why in the use of the mobile Internet for academic purposes the perception of utility is the variable that predicts it. However, it will be necessary to demonstrate the relationship of the perception of utility with affective variables. Values, norms and identity could be those variables that associated with the perception of utility, could configure a measurement model with the likelihood necessary to explain the use of the mobile Internet.

8. CONCLUSION

The objective of the present work was to specify a model for the study of the perception of utility, considering the dimensions reported in the literature, as well

as those established in the present work, but its design limited the contributions to the analyzed sample, suggesting the extension of work towards other scenarios and other study samples.

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NEW DIGITAL COMMUNICATION TOOLS BETWEEN HEALTH PROFESSIONALS AND PATIENTS ABOUT DEJAL@BOT PROJECT

Nuevas herramientas de comunicación digitales entre profesionales de la salud y pacientes a propósito del proyecto Dejal@Bot

José Francisco Ávila-Tomás [48]
St. Elizabeth's Health Center. Spain.
Eduardo Olano-Espinosa
King Juan Carlos University. Los Castillos Health Center. Spain.
César Minué-Lorenzo
Perales del Rio Health Center. Spain.
Francisco Javier Martínez-Suberbiola
Guayaba Health Center. Spain.
Blanca Matilla-Pardo
Bakery Health Center. Spain.
Encarnación Serrano-Serrano
Los Fresnos Health Center. Spain.
Dejal@Bot Group

Abstract
Communication is a human ability that allows us to relate; build our identity (individual, group and collective); share norms, habits and behaviors and evolve personally and socially from the creation, development and acquisition of new knowledge and skills. Health communication is special because of the asymmetry between the professional and the patient. Its objective is to cure, prevent diseases or strengthen healthy attitudes and aptitudes. Its base (anamnesis) is very concrete. The patients sets out their reasons for consultation and the healthcare provider obtains data that guides the exploration to obtain a diagnosis and treatment. The emergence of digital tools to communicate is changing this relationship for their comfort and immediacy, aspects which are highly appreciated by the population, and the healthcare providers cannot remain outside. Technological innovations develop faster than adjustments in ethics and legislation. What will happen when one of the subjects of the communication act is not human? A Chatbot is defined as a conversational robot that integrates an expert system or artificial intelligence that allows a conversation with a human. The development of health chatbots is still scarce but it will be a more and more usual tool in the coming years due to its great efficiency, posing technological, social, ethical, communicative and health challenges. The DejaloBot project is the first independent clinical trial conducted in Primary Health Care to help patients quit smoking assisted by a chatbot. This has generated human-machine communication problems displayed in this article.

48 **Author for correspondence:** José Francisco Ávila-Tomás jose.avila@salud.madrid.org

Keywords: communication, health, chatbot, artificial intelligence, expert systems, big data.

Resumen

La comunicación es una habilidad humana que permite relacionarnos; construir nuestra identidad (individual, grupal y colectiva); compartir normas, hábitos y conductas e ir evolucionando personal y socialmente a partir de la creación, desarrollo y adquisición de nuevos conocimientos y habilidades. La comunicación en salud es especial por la asimetría entre el sanitario y el paciente. Su objetivo es curar, prevenir enfermedades o potenciar aptitudes y actitudes saludables. Su base (anamnesis) es muy concreta. El paciente expone su motivo de consulta y el sanitario obtiene datos que orientan la exploración para obtener un diagnóstico y tratamiento. La aparición de herramientas digitales para comunicarnos está modificando esta relación debido a su comodidad e inmediatez, ambos aspectos muy apreciados por la población, y los sanitarios no podemos permanecer ajenos. Las innovaciones tecnológicas se desarrollan a mayor velocidad que los ajustes en materia de ética y legislación ¿Qué ocurre cuando uno de los sujetos del acto de la comunicación no es humano? Se define chatbot como un robot conversacional que integra un sistema experto o inteligencia artificial que permite una conversación con un humano. El desarrollo de chatbots en salud todavía es escaso, pero va a ser una herramienta cada vez más habitual en los próximos años por su gran eficiencia, planteando retos tecnológicos, sociales, éticos, comunicativos y sanitarios. El proyecto Dejal@Bot es el primer ensayo clínico independiente y realizado en Atención Primaria de Salud para ayudar a los pacientes a dejar de fumar asistidos por un chatbot. Ello ha generado problemas de comunicación humano-máquina reflejados en este artículo.

Palabras clave: comunicación, salud, chatbot, inteligencia artificial, sistemas expertos, big data.

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1. LEARNING THE MACHINES. COMMUNICATION BETWEEN MAN AND MACHINE

Machines can learn similarly to humans by the method of repeated exposure to situations with similar solutions. The experience leads us to make decisions that have previously been useful for the resolution of similar problems in our past, generating abstract solutions from concrete everyday elements. It is the operative conditioning, one of the principles that govern our behavior, where the behaviors that bring a benefit have a greater probability of being repeated.

However, in other aspects there are differences between human and machine learning (Lake, 2015):

1. Human learning is dynamic and changing depending on the context and life circumstances. There are events that occur during childhood, in maturity or in old age, and can occur in the context of disease, life crisis or special experiential situations that will condition our learning.
2. It is variable from person to person: there are subjects with vital exposure to many events while others have a life with less vital experiences. There are also qualitative differences, since different people, faced with the same life event, can draw from different experiences.
3. We can expose machines to simulated or real situations that would be ethically impossible with humans.
4. The speed of data acquisition by a machine is faster. The machine does not have other functions (feeding, rest or leisure) nor does it get exhausted (it works 24 hours a day).

Decision-making can be represented by logical algorithms that can be translated into a machine-interpretable language. The relationship between Big Data and Artificial Intelligence is that these huge amounts of data in multiple formats (Big Data) serve to train and empower a machine to develop and train autonomous decision making algorithms (Obermeyer, 2016).

Let's imagine that a machine "knows" all the content that has been published in health over the last 10 years, that it is equipped with logical tools that allow it to establish relationships between them and that it is capable of moving from a specific case to a global one. We would then have a more reliable diagnostic decision-making tool than the best doctor in the world, since none will be able to handle all the variables as quickly and accurately as computer systems do.

We can distinguish two types of learning (Isasi, 2004) applied to machines:

1. With human participation, which determines the "correct" and "incorrect" relations of the machine. The human function is to "reinforce" the successes so that they tend to repeat themselves.
2. Machine Learning. It consists of feeding experience to the machine (from Big Data) and that is, through some initial logical rules, capable of learning independently from the experience provided by the data without continuous human intervention.

There are numerous examples of Machine Learning based on logical structures arranged in complex layers (something like the interconnection of neural networks). Many of these layers are "specialized" in specific subjects, such as neurons, with specialized layers in "seeing", "hearing" or "relating" (Julian, 2016).

These processes are not exclusively explained in a mathematical way, since initial learning patterns are established (basic neural skeleton) that are modified and improved through experiences provided by Big Data and generating their own "neural connections". In a short time, and having enough data, we can have

a specialized system capable of making decisions.

The use of robotic systems in health care poses a problem in human-machine communication. The robot must be expressed in such a way that users can understand it and must interpret what those users express without them having to do so differently than they would in order to communicate with another person. In short, the aim is to imitate human beings in their way of interacting (Alonso Martín, 2014).

The development of anthropomorphic robots for direct attention to people can produce rejection in the human being when relating to a machine with a humanoid aspect. It is the so-called theory of the disturbing valley, which receives this name from the definition of "the disturbing" from the essay "In the psychology of the disturbing" by Ernst Jentsch (1906). "The disturbing" is a disturbing sensation before something that is and is not familiar at the same time. A situation or object that is very similar to something everyday and well known, but which causes us discomfort. This theory it is retaken for Masahiro Mori in 1970 to describe the relationship human/robot, that is more and more positive as long as the robot maintain appearance of robot and we be conscious that it is a machine to our service. When the robot is acquiring anthropomorphic traits, the emotional response of a human will be increasingly negative until reaching the rejection by the "restlessness" generated.

This theory can be explained in the following way (Alonso, 2014); if an entity is quite different from the human, its characteristics will be more highlighted, and it will generate sympathy; while if the entity has a human appearance, its "differences" will become evident, and it may create feelings of rejection (figure 1).

1. A robot with a human aspect can act in our subconscious generating the idea that every human being is a mechanical element lacking a soul.
2. If most androids are copies of real people they become doubles, causing fear of being replaced.
3. The android's clumsiness of movement may generate rejection by causing fear of loss of body control.
4. The existence of androids can be perceived as a threat to the concept of human identity.

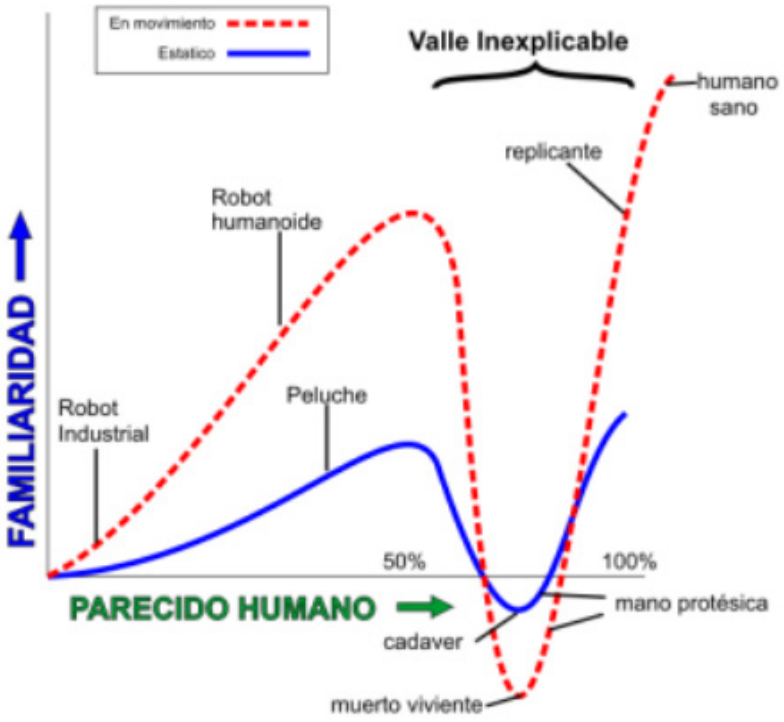

Figure 1. *Representation of the "disturbing valley" described by Masahiro Mori.*
Source: *Original image by Edgar Talamanes.*

However, rejection is not always generated. Researchers like Hiroshi Ishiguro, director of the Robotic Intelligence Laboratory at Osaka University, have created their robotic clone equipped with artificial intelligence that acts as a double of its creator in the Geminoid project.

This project (Ishiguro, 2019) surpasses the effectiveness of the creation of clones by developing lines of research in the human-robot relationship in search of the concept of what "human being" is and by studying the interactions both from the point of view of personal and social influence on humans and the modifications that are generated in artificial intelligence.

2. DEJAL@BOT PROJECT

The Dejal@Bot project was born in 2014, when a group of doctors related to the Madrid Society of Family Medicine (SoMaMFyC) belonging to the Group of Approach to Tobacco (GAT) and the Group of New Technologies, we plan to evaluate the impact of technological tools on the smoking cessation of our patients.

In a review of the published clinical trials we saw that there were articles referring to support with SMS messages and some mobile applications (apps). After evaluating the main apps, none of them adapted to the guidelines set by scientific evidence through clinical practice guidelines, so we set out to build our own. The cost was considerable and we resorted to public funds by applying for a FIS (Health Research Fund) grant in 2015. This grant was denied and the project was

put on hold for a few months.

We were satisfied with the chosen methodology and believed in the relevance of the project since there were very few clinical trials in digital health and products were being marketed without prior demonstration of their benefits.

We were working for a year and during that period of time we started talking about the application of artificial intelligence in health. The first health chatbots appeared and we came up with the idea of using a chatbot instead of an app. We reformulated the application and presented ourselves in the 2017 FIS call where we were awarded the grant.

Smoking is the leading cause of preventable illness and death in the world, directly causing 5 million deaths annually (WHO, 2012). In Spain, 24% of the population smokes daily, and 3.1% more is an occasional smoker (INE, 2013), which caused nearly 52,000 direct deaths in 2014. (Ministry of Health, 2016)

Most smokers would like to quit, and the percentage of smokers who try is high (up to 78 attempts per 100 smokers for a year in the UK), but only 2-3% remain smoke-free a year later. (Averyard and West, 2007)

Health professionals are very effective and efficient when intervening on the patient who smokes, multiplying by more than three his chances of abstinence. However, only 1 out of 20 attempts is made with professional supervision. The factors causing these low rates of intervention are the educational deficit of the professionals, their conviction of the low usefulness of the intervention and the lack of time perceived to develop it. (Saito, 2010)

Therefore, we think that the existence of a tool that is easy to use, accessible through a cell phone and that has the knowledge of an “expert” in smoking could have a role in the process of smoking cessation.

The technology of bots in mobile devices has several advantages over the usual applications (Apps):

1. A chatbot is not a program to be installed and does not take up space in the phone’s memory.
2. Respects the privacy of the patient/user without access to personal data. 3. No training is required since communication is done through a messaging app (most widespread application among mobile users). 4. Uses a standardized interface favoring usability and adherence.

Our bot has been designed by integrating behavioral, motivational, problem solving and relapse prevention components, structured into interventions of proven usefulness in helping to quit smoking and recommended in evidence-based clinical practice guidelines (NICE, 2008).

We invite the readers of this article to know about this independent project through our web page (www.dejalobot.es) where we generate contents related to

the project in open to favor other similar projects that may be carried out.

This is a randomized clinical trial designed to demonstrate the effectiveness of a conversational bot for a fundamental preventive aspect in the treatment of citizens such as smoking cessation. This study has been financed by the Health Research Fund Carlos III Health Institute with the number: PI17/01942 and the European Regional Development Fund (ERDF).

The funders have played no role in the design of the study, the collection of data during the field work, or the interpretation of the data. For the field work, 252 researchers have collaborated, health professionals of Primary Care, from 36 Health Centers of the Community of Madrid.

The fieldwork began in October 2018 and runs until the end of November 2019, with 540 smokers, who were randomly assigned to the control branch (smoking cessation in consultation following existing protocols for this intervention) or the intervention branch, and in which, after an initial visit for inclusion and initial assessment, they downloaded to their cell phones a regular commercial messaging application through which they interacted with the chatbot that would guide their cessation process. The intervention scheme can be seen in figure 2.

Figure 2. *Pat Plot of Dejal@bot clinical trial.*

The main variable is abstinence at 6 months, referred by the smoker and biochemically proven through co-oximetry. Secondary demographic variables of the participants and researchers, quality of life variables and variables related to the efficiency of the process have been measured.

This study was approved by the Ethics Committees of Clinical Research of the Community of Madrid (December 13, 2017) and the University Hospital 12 de Octubre of Madrid (Madrid, January 30, 2018) in compliance with the Spanish legislation on human experimentation and respecting all the bioethical principles

of autonomy, justice, beneficence and absence of maleficence, in accordance with the standards of good practice of the Declaration of Helsinki and the Oviedo Convention.

We are currently finalizing the field work and do not have definitive results. We appreciate the methodological support of the Foundation for Research and Innovation in Primary Care (FIIBAP) from the initial conception of the study.
The clinical trial protocol has been accepted for publication by BMC Medical Informatics.

The methodological design of the work has been a challenge, but a greater challenge was to design a chatbot with “human” communicative features than in the intervention branch of our

The trial offered advice, support, information and reminders, establishing a communication with a human that either could initiate through natural language.

3. COMMUNICATING WITH OUR BOT

Communication with the bot is done in different ways:

1. Communication through written text. A chatbot works through dictionaries of concepts or ideas that are trained through common words or phrases that describe the same concept or idea. These dictionaries are grouped by semantic fields that establish a series of categories. In our case, we established a series of categories related to the different stages, feelings or processes related to quitting smoking. Thus we created a category that we call “reasons to quit” with the following semantic fields: “health/fear/illness”, “money”, “exemplary role”, “aesthetics”, “self-esteem/freedom”. Within each of the fields we group a series of ideas, words or concepts with which a certain situation is usually expressed, thus making a initial dictionary. Thus, in the case of the “aesthetic” field we include concepts such as “yellow teeth”, “bad breath”, “wrinkles”, “I get old”, “I get old”, “I get old”, and so on up to 20 initial concepts.

When the bot goes to a category/semantic field/dictionary and “can’t find” the word or concept but thinks it must be there, it jumps a warning to the programmer asking if that human-written phrase corresponds to a certain category. If the programmer answers yes, the bot includes that new word or phrase in the corresponding dictionary. That is, with the continued use is learning and completing each of the dictionaries. If not, the programmer places the concept in question in the corresponding dictionary so that the bot “learns” new synonyms and delimits each of the dictionaries.

Our bot has 20 categories, 235 semantic fields and started with more than 10,000 concepts in its dictionaries.

As a curiosity, we have created a category “tacos” to generate some response to the interlocutor who uses them, such as “don’t talk to me like that, I’m a small

robot and I don't like swearing" or "don't be angry, it's not that bad".

2. Communication through emoticons: When using a communication through a chat and due to the great use of emoticons in this communication channel we decided that the bot would use them within a text language. Thus we created a series of categories that defined the moods expressed by each of the emoticons, so that it could use them within its dictionaries to express a specific emotion or situation.

3. Multimedia communication: Through a chat system we can share files on different media that can be run or played without leaving the program. In this way, we have produced 17 videos and 20 computer graphics that offer information that we could hardly express with text.

Communication with a bot is bidirectional and therefore can be initiated by the human (reactive bot) or by the machine itself (active bot).

The first interaction is active, generated by the bot:

" PRESENTATION OF THE BOT AND THE PROTOCOL
B: Hello, human being! How are you? Welcome!
B: My name is Dej@lo Bot and I'm going to be your assistant to help you stop smoking.
B: I have been programmed by experts in smoking following the most current scientific guidelines in order to help and accompany you throughout this process.
B: I will be with you at all times. You only have to call me if you need me.
B: My way of acting is simple. I follow a formal program to help humans quit smoking similar to the one they use in the best specialized clinics. I will develop it with you two weeks before you quit and several months after.
B: Today I will ask you some questions, and the next few days I will give you assignments and tips. The tasks are not mandatory, but the humans who do them greatly increase your chances of quitting, as they help you anticipate and solve the most common problems that arise.
B: To motivate you to work, I will give you a series of badges that give access to higher levels of the process if you complete the main tasks".

The bot has the following active communication actions:

1. In the presentation or activation of the bot.
2. In each of the phases determined by the research team. According to scientific evidence, a series of tasks must be carried out prior to the date of smoking cessation in which the situation of the smoker is explored and knowledge is offered (attitudes towards desire to smoke, attitudes towards potential relapses, how to handle the desire for tobacco, drawing up a list of reasons for quitting, exploration of existing myths related to tobacco) These activities must be done on specific days and before "D-day" or the date determined by the smoker as the first day without tobacco. Depending on the concepts we want the smoker to learn, the bot behaves actively on a few days determined by the researchers and at a time chosen by the smoker.

3. After “D-day”, the bot has a daily contact during the first three days, then every two days, then weekly and finally monthly.

Reactive communications occur when the smoker initiates communication through chat and answers are provided to the questions the human asks.

“REACTIVE MENU (when the patient enters on his own initiative at any time) F: “-”
B: Hello human! How can I help you?
B: If your doubt is identified with any of the possibilities that I offer you here below, point out the corresponding option. If not, tell me clearly and simply
F: (develop semantic fields)”

4. COMPENSATION AND REWARDS

In behavior change interventions, the establishment of “rewards” or pleasant situations that enhance any positive change made by the patient are of great importance. With this, we use in our favor the operative conditioning, trying that the behavior identified as positive also has beneficial effects in the short term.
It is known as gamification or ludification the use of techniques, elements and dynamics typical of games in non-recreational activities with the aim of boosting motivation, reinforcing behaviors, improving productivity or facilitating learning (Deterding, 2001).

With these conditions, we have established some compensation and reward systems generating a gamification layer inside the bot. These activities are also forms of communication between the human (patient in the process of quitting smoking) and the machine.

1. Badges: Badges are awarded according to a series of activities or milestones along the process, especially in the first part, from the first connection with the bot to “D-day” (or first day without smoke). We have chosen a 5-star system (similar to the rating systems in many web services) to which the user is accustomed. These stars are awarded when the smoker performs a series of essential tasks for the process such as: drawing up the personal list of reasons to quit smoking, determining the D-day or selecting a trusted person to call in case of crisis.

The badges are a series of rewards that mark the evolution of the process and distinguish a user from the rest of the community for their achievements.

2. Other rewards: On the first day of contact with the bot, the user is asked which is his favorite band and is checked (figure 3). This information is not used again until after several weeks but is stored in the chatbot’s memory. From “D-day” onwards, at each new connection, the first question the bot does not ask is “have you smoked since the last time we spoke”, if the answer is “no” the bot randomly gives us a YouTube video of our favorite artist. If the answer is “yes” it explores the reasons why we have relapsed and offers us the possibility to mark a new “D-day” when we are ready for it again.

Figure 3. *Real chatbot dialog screen on the first day when you explore and check out our favorite band.*

5. HUMANIZING OUR BOT TO IMPROVE COMMUNICATION

Using a chatbot that communicates with the human being through a conversational application and that allows a dialogue using multimedia elements (text, images, videos) avoids the so-called disturbing valley because, although the human is aware that he is talking to a machine, the machine does not have a human appearance.

The process of quitting smoking is a personal decision that affects our intimate plane and, having a machine as a speaker could mean a cold and unpleasant or impersonal communication for the user of this tool.

Humanizing technology is a challenge in an environment where we have more and more tools to carry out these actions since technology has to be at the service of the human being and not at the service of its products (García Avilés, 2008).

Thus, we have sought to give the bot an image without detaching it from its character as a machine; we wanted to humanize our corporeal robot.

Within the cinematographic culture of the 20th and 21st centuries we have examples of humanization of robots. Aggressive aspects as in the films Terminator (Cameron, 1984) or Robocop (Verhoeven, 1987); with feelings practically indistinguishable from humans as in the film Blade Runner (Scott, 1982); childlike

aspects as Wall-e (Stanton, 2008); or robots that are related to each other as C3PO and R2D2 in the different film episodes of the Star Wars series (Stars Wars 1977-2019).

We wanted an image of a robot close to human passions while still having the physical appearance of a robot and we discovered Bender B in our search. Rodriguez, a robot from the Futurama series (FOX 1999-2013).

In Futurama, the robots represent beings without ethical limitations, which allows them to occupy a vile and miserable place in society, even though they are a full part of it. Using an “unfamiliar” element such as robots, we can be shown “something familiar” as the defects of the human being, channeled through Bender.

We look for images without copyright to use them in our project and through different vector models we generate our Dejal@Bot. (Figure 4):

Figure 4. *Original aspect of Dejal@Bot.*
Source: *Own elaboration from royalty-free vector images.*

We had to provide him with human feelings, since we wanted him to be a robot that would accompany the human in his process of quitting smoking and go through the same psychic situations as the human. The best way we have today to show feelings graphically in chat environments are the so-called emoticons, which have been established as standards in their meaning as elements of communication.
The next step was to create facial images that would represent those moods. (Figure 5):

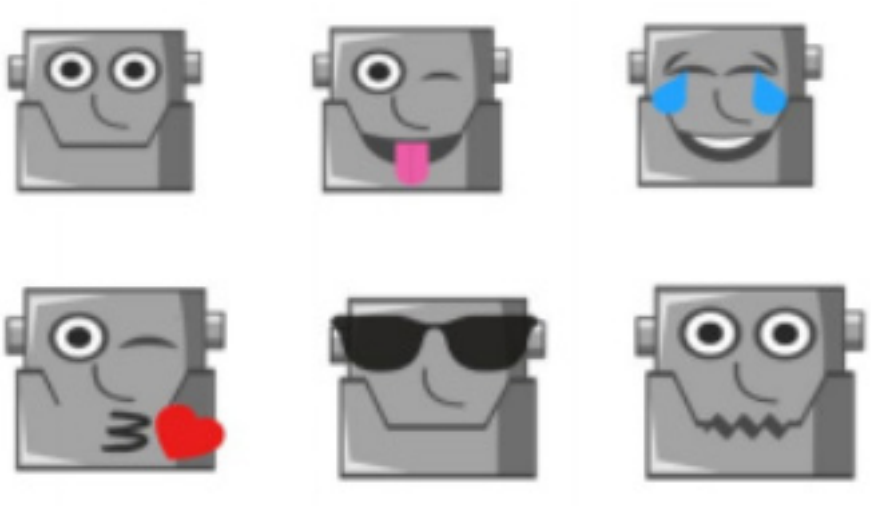

Figure 5. *Different images of Dejal@Bot to represent moods.*
Source: *Own elaboration from royalty-free vector images.*

However, the great technological challenge has been to establish a set of semantic fields of concepts to be able to establish communication between the human and the machine through a natural language capable and including the great variability of existing expressions to describe different states of mind in the process of quitting smoking. The work for them has been enormous and difficult to describe.

Currently, the Bot is in a process of continuous improvement where the opinions of its users have great weight.

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