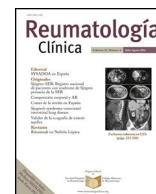




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Original Article

## Controversy about the use and financing of SYSADOA for osteoarthritis in Spain: An analysis of the scientific-social debate in the media



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### ABSTRACT

**Background and objective:** The use of SYmptomatic Slow-Acting Drugs for Osteoarthritis (SYSADOA) in the treatment of osteoarthritis (OA) has been a topic of debate in the scientific community and public entities regarding their public financing in Spain. The objective of this study was to describe and analyse the main positions of media outlets, public entities, regarding the use and financing of SYSADOA in Spain. **Methods:** A qualitative and quantitative analysis of the content regarding the use and financing of SYSADOA was conducted in general media outlets (*El País*, *El Mundo*, *La Vanguardia*, *ABC*, and *20minutos*), public statements, and Twitter publications.

**Results:** A total of 15 articles in general media outlets, 872 tweets, and 7 public entity statements were identified. Mostly, media outlets (91%) and social media platforms (78%) exhibited a favorable trend towards funding.

**Discussion and conclusions:** The use of SYSADOA in OA patients continues to be controversial in the scientific community. However, there is consensus among patient associations in favour of public funding and use as a treatment for OA patients.

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## Controversia en el uso y en la financiación de SYSADOA para la osteoartritis en España: un análisis del debate científico-social en los medios de comunicación

### RESUMEN

**Antecedentes y objetivo:** El uso los SYSADOA (*SYmptomatic Slow-Acting Drugs for Osteoarthritis*) en el tratamiento de la osteoartritis (OA) ha sido fuente de debate en la comunidad científica y en entidades públicas con relación a su financiación pública en España. El objetivo principal de este estudio fue describir y analizar las principales posiciones de medios de comunicación y entidades públicas frente al uso y financiación de SYSADOA en España.

**Material y métodos:** Se realizó un análisis cualitativo y cuantitativo del contenido respecto al uso y financiación de SYSADOA en medios generalistas (*El País*, *El Mundo*, *La Vanguardia*, *ABC* y *20minutos*), comunicados de organismos públicos y publicaciones en Twitter.

**Resultados:** Se identificaron 15 artículos en medios generalistas, 872 tweets y 7 comunicados de organismos públicos. Mayoritariamente, los datos obtenidos en medios de comunicación (91%) y redes sociales (78%) respaldaron la financiación de SYSADOA.

**Discusión y conclusiones:** A pesar de la controversia en la comunidad científica, este estudio destaca un consenso en los medios de comunicación y asociaciones a favor de la financiación pública de SYSADOA en pacientes de OA.

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## Introduction

Osteoarthritis (OA) is one of the most common rheumatic diseases in the adult population over 45 years of age, affecting more than 500 million people worldwide.<sup>1</sup> OA is characterised by changes in joint metabolism, affecting both the deterioration of hyaline cartilage and all the other components of the joint. This can lead to the development of joint pain, stiffness, inflammation and disability.<sup>2,3</sup> According to the EPISER 2016 prevalence study, 29.35% of the adult population in Spain suffers from osteoarthritis in one or more joints, this being more prevalent in women, and the lumbar spine being the most affected joint.<sup>4</sup> OA is considered the third leading cause of years lived with disability and entails high socioeconomic costs for health systems.<sup>5</sup> In Spain, it is estimated that the total cost of hip and knee OA is between 1 and 2.5% of GDP.<sup>6</sup> The treatment of OA is a challenge for health professionals, since there is no cure for the disease. Current treatments focus on non-pharmacological, pharmacological and surgical approaches, the latter being recommended when conservative treatment is ineffective and where there is a major impact on quality of life.<sup>7,8</sup>

In this direction, the use of a group of drugs known as SYSADOAs (*Symptomatic Slow-Acting Drugs for Osteoarthritis*) has been proposed as a therapy option for the treatment of pain, stiffness and functional capacity in OA.<sup>9,10</sup> However, although there is widespread use in Spain of SYSADOAs drugs such as glucosamine (GS) and chondroitin sulphate (CS), their efficacy and safety have been the subject of controversy in the scientific literature in recent years.<sup>11</sup> On the one hand, some studies have suggested that SYSADOAs may be effective in the treatment of OA, especially in terms of reducing pain, improving joint function, and reducing the consumption of anti-inflammatory drugs.<sup>12,13</sup> On the other hand, several systematic reviews have questioned the efficacy of SYSADOAs, suggesting that they may have modest or no effects on pain and joint function.<sup>14,15</sup> Due to the disparity in the results of clinical trials and meta-analyses in the use of GS and CS, there is currently no consensus in the scientific evidence as to their efficacy in improving pain or functionality in people with OA.<sup>15,16</sup>

In addition to the scientific controversy surrounding the efficacy of SYSADOAs, there is also a debate across the media over the financing of these treatments by the Spanish National Health System (SNS in its Spanish acronym). At the end of 2019, the Directorate General for the Common Portfolio of SNS and Pharmacy Services (DGCCSyF), under the Ministry of Health, began the processes of defunding these drugs. Since then, patient associations, the Spanish Society of Health Professionals and civil society have all spoken out through the media, creating a social debate.<sup>17</sup> In 2020, OAFI (International Osteoarthritis Foundation) initiated legal proceedings with the lodging of an appeal against this de-financing move, which was then temporarily paralysed. Taking into account the importance of recommendations for effective and safe treatments for OA,<sup>18</sup> and the relevance of health-related information in the media,<sup>19</sup> this study aims to qualitatively and quantitatively analyse the controversy over the use and financing of SYSADOAs drugs for OA patients in the Spanish mainstream media and social networks. In addition, another of its purposes is to describe the main positions of public bodies, professional societies and patient organisations.

## Methodology

This study was based, on the one hand, on the analysis of the content of articles published in the press, posts in digital media, statements from public bodies and posts on social networks from the 1st of January 2018 to the 1st of January 2023.

In relation to the search for articles in the press, a search was carried out in the 5 generalist newspapers with the highest number of readers in Spain in 2021, according to the General Media Study by the AIMC (Spanish Association for Media Research, 2021). The search was run in both the digital and print versions of the 5 selected newspapers, including the supplements of each newspaper. To this end, the search was undertaken through the MyNews tool, a digital newspaper library belonging to the Spanish press. The keywords used were *osteoarthritis*; *SYSADOA*; *arthrosis*; *treatment*; *financing* and *drug*; in different combinations using the Boolean operators AND and OR. Articles were included in the study if they met the following criteria: 1) they provided information in the title, subtitle, or body of the article concerning OA and the use of SYSADOAs in OA disease; and 2) they provided information or expressed an opinion on the financing process of SYSADOAs drugs in Spain. In order to establish the position of the articles included on the financing of SYSADOAs by the SNS, these were classified into the following 3 categories:

- A) Partial and in favour. When the content of the article offers information and arguments exclusively in favour of financing without providing information on contrary positions.
- B) Impartial. When the content of the article expresses positions and information both in favour of and against funding from different points of view.
- C) Partial and against. When the content of the article contains information and arguments exclusively against funding, without providing information on positions in favour.

In relation to social networks, a search was designed for Twitter<sup>®</sup> by compiling tweets related to the use and financing of SYSADOAs in Spain. To do this, an account was created for this purpose and the advanced search tool of the application itself was used. The same keywords as those used in the press were applied as well as the same temporary filter. In relation to the information provided by non-profit public bodies, we included posts from associations, foundations and public organisations figuring in the census by either the Spanish Ministry of the Interior or the Ministry of Justice. Likewise, for these posts, the same inclusion criteria were maintained.

## Results

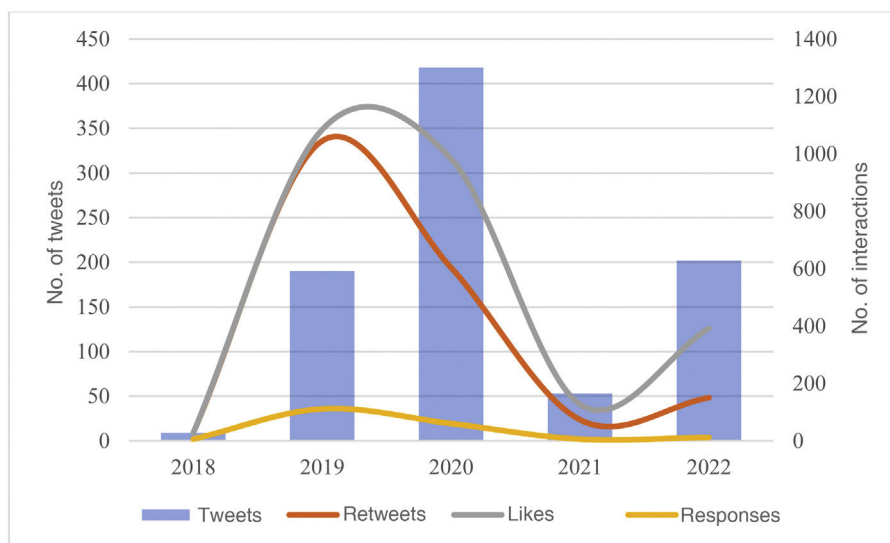
The search through the newspaper archives and records of the generalist media examined identified 46 potential articles. Following the rejection of duplicate articles using the *MyNews tool*, thirty-six articles were analysed for inclusion. Finally, a total of 15 articles that met the established inclusion criteria were accepted. These articles had been published between the 1st of January 2018 and the 1st of January 2023. Regarding the particular sources, 5 articles were published in *La Vanguardia*, 5 in *20 minutos*, 3 in *ABC*, 1 in *El País* and 1 in *El Mundo*. The articles included in this study were described and summarised according to the media outlet where they were published; the title; the sources used; and the content (whether or not they recommended the use of SYSADOAs in OA, and the position on funding by the Spanish NHS) (Table 1). It was observed that two-thirds of the articles included were published in *La Vanguardia* and *20 minutos*, in the same proportion. Regarding the sources used by the articles, 64% were health professionals specialising in the field, of which all belonged to the professional category of medicine. Among the profiles of medical specialisation found, the most frequent specialty was pharmacology (43.7%), followed by rheumatology (25%). On the other hand, the public bodies most consulted as a source were: 24% the OAFI; 16% the Span-

**Table 1**  
Classification and summary of the content of articles identified in the general media.

Media	Article Title	Source	Recommendation	Financing
<i>El País</i>	Ministry of Health to stop financing drugs for osteoarthritis”	Carmen Sánchez (treasurer of the Spanish Association with Osteoporosis and Osteoarthritis [AECOSAR]) Francisco Blanco García (Rheumatologist) 2 scientific articles	Use of SYSADOAs to decrease pain and increase functional capacity	In favour
<i>The World</i>	Osteoarthritis, the disease suffered by Mario Vaquerizo and 7 million other Spaniards	Marcos Paulino (Rheumatologist)	Moderate evidence, controversial use of SYSADOAs	—
<i>La Vanguardia</i>	Ministry of Health to stop funding SYSADOA DRUGS for patients with osteoarthritis: Their scientific evidence is controversial”	Ministry of Health Josep Vergés (Pharmacologist and CEO of OAFI)	Using SYSADOA to decrease pain and increase functional capacity	In favour
	Osteoarthritis patients ask that sysadoas not be stopped from funding: “They are our only alternative”	Josep Vergés (Pharmacologist and CEO of OAFI) María Antonia Robles (President of AECOSAR) José Luis Baquero (Director of the Spanish Patients’ Forum: FEP)	Use of SYSADOAs due to their efficacy, safety, and no available pharmacological alternative	In favour
	Experts defend the use of SYSADOA drugs within the first line of treatment for osteoarthritis	Antonio García (Professor of Pharmacology) María Teresa Tejerina (President of the Spanish Society of Pharmacology)	Use of SYSADOAs to decrease pain and increase functional capacity	In favour
	Alternatives to treat knee osteoarthritis	Iván Robert Calvet (Traumatologist)	Does not recommend the use of SYSADOAs, due to lack of evidence	—
<i>ABC</i>	Those affected by osteoarthritis ask for more research for this neglected disease	Josep Vergés (Pharmacologist and CEO of OAFI)	Proper Use of SYSADOAs	In favour
	Osteoarthritis: I’m terrified of people shaking my hand”	José Luis Pablos (Rheumatologist)	Limited use of SYSADOA, ineffective, only when there is no therapeutic alternative	Impartial
	Patients with osteoarthritis ask that a group of drugs not be stopped	María Antonia Robles (President of AECOSAR)	Use of SYSADOA, especially for its high security against comorbidities	In favour
<i>20minutos</i>	Health will stop financing a group of drugs against osteoarthritis	Ministry of Health Josep Vergés (Pharmacologist and CEO of OAFI)	Use of SYSADOA due to its effectiveness and safety	In favour
	Protests by patients with osteoarthritis after the decision by the Health Ministry to stop financing a type of medicine	Ministry of Health, Josep Vergés (Pharmacologist and CEO of OAFI)	Use of SYSADOAs due to their safety and effectiveness	In favour
	How diet influences the advance of osteoarthritis and rheumatoid arthritis	A scientific article	Moderate evidence for the use of SYSADOAs, with little benefit	—
	Osteoarthritis or arthritis, do you know how to differentiate them?	Mercedes Borja (Journalist)	Using SYSADOAs as cartilage protectors	—
	The vulnerability of patients with osteoarthritis	Carmen Sánchez (Treasurer of the Spanish Association with Osteoporosis and Osteoarthritis), Society Spanish Degree in Rheumatology, Sergio Giménez (Primary Care Physician)	Use of SYSADOAs due to their efficacy, safety, and no available pharmacological alternative	In favour
	Ministry of Health to stop funding SYSADOA DRUGS for osteoarthritis	Josep Vergés (Pharmacologist and CEO of OAFI) Ministry of Health	Use of SYSADOAs due to their effectiveness and safety	In favour

ish Association with Osteoporosis and Osteoarthritis (AECOSAR), 16% the Ministry of Health; 4% the Spanish Patients’ Forum (FEP); 4% the Spanish Society of Pharmacology (SEF) and 4% the Spanish Society of Rheumatology (SER). Only 2 of the articles included used previously published scientific studies as their main reference. The first scientific article cited was the *ArtRoCad* study, which was used to recommend the use of SYSADOAs on the basis that only 5% of the cost of treating osteoarthritis in Spain corresponded to these drugs.<sup>20</sup> The second study cited was a report prepared by the Ministry of Health in 2014 through the Spanish Network of Agencies for the Assessment of Technologies and Services under the National Health System (RedETS) and the Basque Country’s regional Department of Health, which concluded that international recommendations based on the available scientific evidence justify the process of divestment and the non-recommendation of the use

of SYSADOAs in the treatment of OA in hip and knee.<sup>21</sup> Finally, a systematic review and meta-analysis carried out by the *European Alliance of Associations for Rheumatology* (EULAR), which included 24 reviews and 150 articles, concluded that GS supplementation presented low/moderate evidence with little impact on pain and functional capacity.<sup>22</sup> In relation to the position of articles included in the media on the use and financing of SYSADOA, 73.3% recommended its use; 20% recommended its use, albeit warning of the moderate degree of evidence, little effect, and as a therapeutic alternative; while one article (6.6%) did not recommend its use due to the lack of scientific evidence. Regarding funding, 40% of the articles were classified as partial and in favour (3 in *La Vanguardia*, 2 in *20minutos* and one in *ABC*) and 33.3% as impartial (2 in *ABC*, one in *El País*, one in *La Vanguardia* and one in *20minutos*). A total of 26.7% of the articles (2 in *20minutos*, one in *El Mundo* and one in *La*



**Figure 1.** Number of tweets and interactions per year obtained on Twitter®.

*Vanguardia*) did not provide information or describe positions on the financing of SYSADOA. No article was identified that presented information exclusively against the financing of SYSADOAs by the NHS.

Through the search on the social network Twitter®, 1075 tweets were identified during the same period of inclusion as in the general media. The information was recorded using the Microsoft Excel® spreadsheet programme, after eliminating duplicate tweets, with advertising content and those made in a language other than Spanish, thus leaving a total of 872 tweets obtained for analysis. The tweets obtained by author, date of post, content of the message, number of replies, likes and retweets were analysed. The annual distribution of tweets published and the number of global interactions can be seen in Fig. 1. A total of 47.9% of tweets were published during 2020. Due to the large number of posts, the 5 accounts with the greatest activity and the most interactions were identified to facilitate the contextualization of the results (Table 2). The account with the highest activity was @stopatrosis, which accounted for 42.6% of the tweets obtained, 4 times higher than the tweets published by the second most active account. The @stopatrosis profile does not identify anyone personally: it defines itself as an account for the dissemination of OA prevention and the tweets are focussed on the use and vindication of SYSADOAs funding. The @consalud.es account was the second most active account, corresponding to one of the main online newspapers in the health sector: Consalud.es, which belongs to Mediforum (a business group whose main client is the pharmaceutical industry).<sup>23</sup> The third most active account was @condronews, an information account on news and research on OA, belonging to Laboratorios Reig Jofre S.A; these laboratories manufacture SYSADOAs drugs, among other products. The fourth most active account was that of the user Carmen Arpón Domínguez @fabulosa1962, a retired nurse from the Rioja Regional Health Service (SERIS). These 4 most active accounts shared messages in favour of SYSADOAs funding. However, the fifth most active account, @musicaypaz5011, posted messages against the funding and use of SYSADOA. This profile did not present any personal data on identification. Subsequently, this user was contacted by messaging and was asked if he/she wanted to identify their public profile. The user reported that their profession was that of a doctor, without providing any more identification data or affiliation. On the other hand, the tweet with the greatest repercussion and impact was for funding, arguing in favour of the economic expense being passed on to OA patients (Fig. 2).
















Regarding the communications by public bodies, a total of 7 documents were identified. We obtained 4 manifestos against defunding SYSADOA, signed jointly by OAFI, FEP, AECOSAR, the General Alliance of Patients (AGP), the Galician Rheumatology League (LRG), and Conarthrititis. In addition, 2 communiqués from the Ministry of Health responding to questions posed in the Senate by the Popular Party parliamentary group and a communiqué issued by the OAFI.

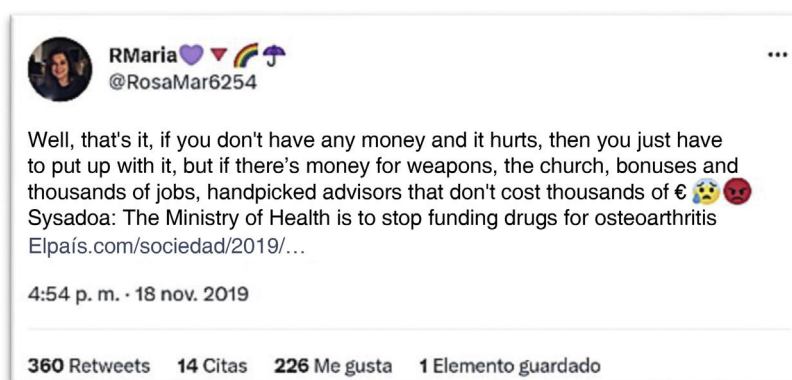
To facilitate the understanding and contextualization of the defunding process, the results obtained were graphically synthesised and presented in the form of a timeline (Fig. 3).

## Discussion

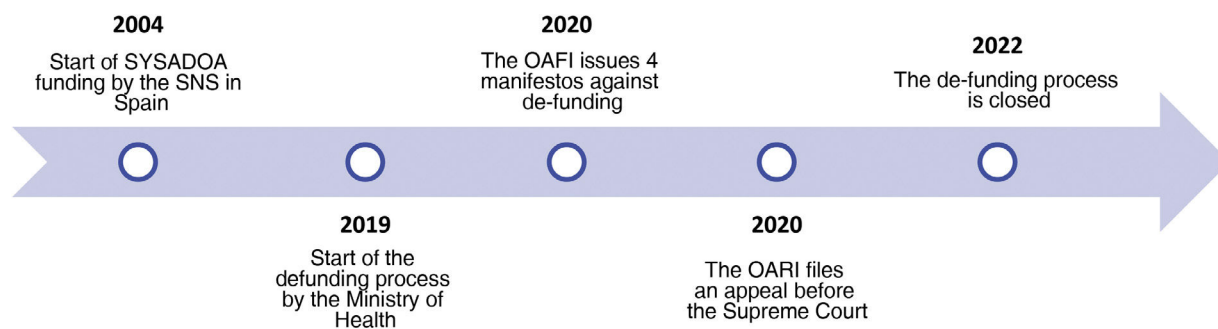
The objective of this study was to analyse the controversy over the use and financing of SYSADOAs in OA patients by Spain's SNS, both in the general media and in social networks. Together, the main events and positions on this controversy by the most relevant public bodies and associations of patients and professionals were summarised chronologically. To this end, a total of 15 articles from media outlets from ABC, El País, El Mundo, La Vanguardia and 20minutos were analysed, as well as 872 public tweets from the social network Twitter® and 7 communiqués from public bodies, professional associations and scientific societies. Regarding the results shown in the press articles analysed, more than 90% of the articles recommended the use of SYSADOA, although 20% of these referred to the controversy over its use due to the scientific evidence shown by these drugs and the limited use when there were no therapeutic alternatives. This majority position recommending the use of SYSADOAs in the general media is far removed from the current discrepancy in the scientific community regarding their use in OA.<sup>11,17,21,24</sup> The UK's National Institute for Health and Care Excellence (NICE) clinical guideline on the management of OA did not recommend the use of SYSADOAs due to the scant evidence of GS, CS, and diacerein for this disease.<sup>8</sup> Accordingly, a few years earlier, EULAR published a guideline with recommendations in which it considered the use of SYSADOAs to be a recommendation with low to moderate evidence, with a moderate impact on pain and functional capacity in patients with OA of the hand.<sup>7</sup> On the other hand, a clinical guideline published in 2019 by the European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ESCEO) considered the use of SYSADOAs as a first line pharmacological treatment in patients with OA of the knee.<sup>25</sup> In relation

**Table 2**  
Total number of tweets, retweets and interactions by 5 accounts with the greatest activity obtained on Twitter®.

Most active users	Tweets	Users with the most retweets	Retweets	Users with most engagement	I like it
 #StopArtrosis @StopArtrosis	372	 #StopArtrosis @StopArtrosis	376	 #StopArtrosis @StopArtrosis	683
 ConSalud.es @Consalud.es	93	 Rose @RosaMar6254	374	 Rose @RosaMar6254	225
 Condronews @condronews	41	 Jesús Palacio @je_pala	127	 Jesús Palacio @je_pala	189
 Carmen Arpón Domínguez@fabulosa1962	14	 Cecilia Calvo Pita @ceciliacalpi	98	 Juan Gérvas @JuanGrvas	139
 Usuari@Tweeter @Musicaypaz5011	12	 Juan Gérvas @JuanGrvas	96	 Carmen Vela Márquez @marmenistic	121



**Figure 2.** Tweets with the most retweets and likes on Twitter®.



**Figure 3.** Timeline of the SYSADOA financing process in Spain.

to the sources used by the articles, it should be noted that only 2 articles used references to scientific studies. The scarce use of references to scientific studies as a source and the absence of contrast with the opposing parties may explain these results.

Regarding the position of the articles that we included against the financing of SYSADOAs by the SNS, 40% were in favour of funding. No articles were identified against funding but only a third of all articles were considered impartial, offering information and arguments both for and against. We consider these results relevant in view of the major impact that the general press has on public opinion concerning health issues.<sup>26</sup>

With regard to the results obtained on the social network Twitter®, a similar trend towards support for SYSADOAs funding was observed. Although the total number of tweets published in the last 5 years are mostly in favour, 3 of the 5 accounts (@JuanGrvas, @je\_pala and @ceciliacalpi) with the most likes

and retweets were against funding by the SNS. This discrepancy can be explained if we look at the account with the most tweets, likes and retweets: @stopartrosis; which accounts for 42.6% of the total tweets included. This is an anonymous account for circulation and support for the financing of SYSADOAs that publishes almost daily. This account was contacted through messaging to obtain more information about this profile; however, no response was obtained. After further investigation, it was identified that this account also appears on social networks such as Facebook® and initiated a signature collection initiative on the Change platform (<https://www.change.com/>) against defunding SYSADOAs (2909 out of 5000 signatures, in April 2023). It is noteworthy that the second and third accounts with most posts (@consalud.es and @condronews) were closely related to the pharmaceutical industry or represented laboratories that produce SYSADOAs drugs. The existence of the great influence of

marketing from the pharmaceutical industry on pharmaceutical prescriptions is well-known, however the healthcare professionals who write the prescriptions tend to minimise its influence.<sup>27</sup> Despite this, marketing and the influence exerted by the pharmaceutical industry must be considered in the financing process as one more player to be taken into account in the development, advertising, profitability and sustainability of SYSADOA drugs.<sup>28</sup>

As regards the communiqués from public bodies, the main positions of public bodies and companies on the de/financing process have been described. Through the information obtained, we can define 2 large blocks: on the one hand, the Ministry of Health, which has maintained the position of defunding this group of drugs, justified by scientific evidence on their low efficacy and the fact that they are drugs which can be directly advertised to the public in the EU. In particular, SYSADOAs are considered dietary supplements in the United States and other European countries and are not subject to public funding.<sup>29</sup> On the other hand, we have the second block led by the OAFI and other associations (FEP, AECOSAR, AGP, LRG and Conarthrititis) in favour of maintaining funding. Together with the latest statement from the OAFI of 18th February 2022, it was reported that the file on the de-funding of SYSADOAs pharmaceuticals had been closed following the appeal lodged.

## Conclusions

The use of SYSADOAs for patients with OA continues to raise controversy in the scientific community; the disparity of results in different systematic reviews and meta-analyses, together with the discrepancies in recommendation between leading international clinical guidelines, maintain a state of controversy among health professionals as to their degree of recommendation. However, in the face of this controversy in the literature, there is consensus between foundations and associations of OA patients in Spain which, together with some scientific societies, maintain a position in favour of public funding and the use of SYSADOAs as a pharmacological treatment in patients with OA.

The debate that has arisen since the attempt by the Spanish Ministry of Health to defund these drugs in 2019, until the case was closed due to an appeal being filed in 2022 by the OAFI, has continued to be covered extensively by the general media. The media have maintained a general trend of bias in favour of public funding of these drugs, with foundations, associations, or professionals mostly being used, to a certain extent, as a source of information in favour of the use and funding of SYSADOA. The media exerts a major influence on the population's view of public health issues, as well as serving as a possible tool for large corporations to achieve their objectives and stimulate the demand for products that are sometimes unnecessary for the improvement of health. That is why we consider these results relevant and propose a reflection on health communication models that would enable commercial interests to coexist alongside promoting the values of good health. At the same time, on the social network Twitter®, a large proportion of the posts have marked this trend in favour of funding, partly by accounts related to the pharmaceutical industry, while other dissenting users with fewer posts have presented a higher degree of interactions.

The patient organisations, societies and foundations led by the OAFI have managed to halt the SYSADOAs defunding case opened by the DGCCSf, under the Spanish Ministry of Health. We consider relevant the coverage by the media and social networks in this process, as regards the mediatization of this scientific/social debate.

## Funding

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## Conflict of interest

The authors declare that they have no conflict of any kind.

## References

- Safiri S, Kolahi AA, Smith E, Hill C, Bettampad D, Mansournia MA, et al. Global, regional and national burden of osteoarthritis 1990–2017: a systematic analysis of the Global Burden of Disease Study 2017. *Ann Rheum Dis*. 2020;79:819–28. <http://dx.doi.org/10.1136/annrheumdis-2019-216515>.
- Hunter DJ, Bierma-Zeinstra S. Osteoarthritis. *Lancet*. 2019;393:1745–59. [http://dx.doi.org/10.1016/s0140-6736\(19\)30417-9](http://dx.doi.org/10.1016/s0140-6736(19)30417-9).
- Kraus VB, Blanco FJ, Englund M, Karsdal MA, Lohmander LS. Call for standardized definitions of osteoarthritis and risk stratification for clinical trials and clinical use. *Osteoarthritis Cartilage*. 2015;23:1233–41. <http://dx.doi.org/10.1016/j.joca.2015.03.036>.
- Blanco FJ, Silva-Díaz M, Quevedo Vila V, Seoane-Mato D, Pérez Ruiz F, Juan-Mas A, et al. Prevalence of symptomatic osteoarthritis in Spain: EPISER2016 study. *Reumatol Clin (Engl Ed)*. 2021;17:461–70. <http://dx.doi.org/10.1016/j.reumae.2020.01.005>.
- Theis KA, Roblin DW, Helmick CG, Luo R. Prevalence and causes of work disability among working-age U.S. adults, 2011–2013, NHIS. *Disabil Health J*. 2018;11:108–15. <http://dx.doi.org/10.1016/j.dhjo.2017.04.010>.
- Prieto-Alhambra D, Judge A, Javaid MK, Cooper C, Diez-Perez A, Arden NK. Incidence and risk factors for clinically diagnosed knee, hip and hand osteoarthritis: influences of age, gender and osteoarthritis affecting other joints. *Ann Rheum Dis*. 2014;73:1659–64. <http://dx.doi.org/10.1136/annrheumdis-2013-203355>.
- Kloppenborg M, Kroon FP, Blanco FJ, Doherty M, Dziedzic KS, Greibrokk E, et al. 2018 update of the EULAR recommendations for the management of hand osteoarthritis. *Ann Rheum Dis*. 2019;78:16–24. <http://dx.doi.org/10.1136/annrheumdis-2018-213826>.
- Wood G, Neilson J, Cottrell E, Hoole SP, Guideline Committee. Osteoarthritis in people over 16: diagnosis and management—updated summary of NICE guidance. *BMJ*. 2023;24. <http://dx.doi.org/10.1136/bmj.p24>.
- Hochberg MC, Martel-Pelletier J, Monfort J, Möller I, Castillo JR, Arden N, et al. Combined chondroitin sulfate and glucosamine for painful knee osteoarthritis: a multicentre, randomised, double-blind, non-inferiority trial versus celecoxib. *Ann Rheum Dis*. 2016;75:37–44. <http://dx.doi.org/10.1136/annrheumdis-2014-206792>.
- Lomonte ABV, Mendonça JA, de Castro Brandão G, Castro ML. Multicenter, randomized, double-blind clinical trial to evaluate efficacy and safety of combined glucosamine sulfate and chondroitin sulfate capsules for treating knee osteoarthritis. *Adv Rheumatol*. 2018;58:41. <http://dx.doi.org/10.1186/s42358-018-0041-9>.
- Bernad Pineda M. Current status of symptomatic slow-acting drugs for osteoarthritis (SYSADOAs) in Spain. *Reumatol Clin (Engl Ed)*. 2016;12:181–3. <http://dx.doi.org/10.1016/j.reumae.2016.06.001>.
- Bruyère O, Altman RD, Reginster JY. Efficacy and safety of glucosamine sulfate in the management of osteoarthritis: evidence from real-life setting trials and surveys. *Semin Arthritis Rheum*. 2016;45:S12–7. <http://dx.doi.org/10.1016/j.semarthrit.2015.11.011>.
- Wang SJ, Wang YH, Huang LC. The effect of oral low molecular weight liquid hyaluronic acid combination with glucosamine and chondroitin on knee osteoarthritis patients with mild knee pain: an 8-week randomized double-blind placebo-controlled trial. *Medicine (Baltimore)*. 2021;100:e24252. <http://dx.doi.org/10.1097/md.00000000000024252>.
- Derwich M, Górski B, Amm E, Pawłowska E. Oral glucosamine in the treatment of temporomandibular joint osteoarthritis: a systematic review. *Int J Mol Sci*. 2023;24:4925. <http://dx.doi.org/10.3390/ijms24054925>.
- Wandel S, Jüni P, Tendal B, Nuesch E, Villiger PM, Welton NJ, et al. Effects of glucosamine, chondroitin, or placebo in patients with osteoarthritis of hip or knee: network meta-analysis. *BMJ*. 2010;341:c4675. <http://dx.doi.org/10.1136/bmj.c4675>.
- Singh JA, Noorbaloochi S, MacDonald R, Maxwell LJ. Chondroitin for osteoarthritis. *Cochrane Database Syst Rev*. 2015;1:CD005614. <http://dx.doi.org/10.1002/14651858.CD005614.pub2>.
- Ibargoyen-Roteta N, Mateos Del Pino M, Gutiérrez-Ibarluzea I, Benguria-Arrate G, Rada-Fernández de Jauregui D, Domingo-Rico C, et al. Variability in the prescription of drugs with uncertain effectiveness. The case of SYSADOA in the Basque Country. *GMS Health Technol Assess*. 2018;14:Doc01. <http://dx.doi.org/10.3205/hta000130>.
- Englund M. Osteoarthritis, part of life or a curable disease? A bird's-eye view. *J Intern Med*. 2023;293:681–93. <http://dx.doi.org/10.1111/joim.13634>.
- Im H, Huh J. Does health information in mass media help or hurt patients? Investigation of potential negative influence of mass media health information on patients' beliefs and medication regimen adherence. *J Health Commun*. 2017;22:214–22. <http://dx.doi.org/10.1080/10810730.2016.1261970>.
- Batlle-Gualda E, Carmona L, Gavrilá D, García Criado El, Ruiz Miravalles R, Carbonebell Abelló J. Implementación y características de la población del estudio

- ArtRoCad, una aproximación al consumo de recursos y repercusión socioeconómica de la artrosis de rodilla y cadera en atención primaria. *Reumatol Clin*. 2006;2:224–34, [http://dx.doi.org/10.1016/s1699-258x\(06\)73052-2](http://dx.doi.org/10.1016/s1699-258x(06)73052-2).
21. Gutiérrez-Ibarluzea I, Ibarгойen-Roteta N, Benguria-Arrate G, Rada D, Mateos M, Regidor I, et al. SYSADOAS. condroprotectores en el tratamiento de la artrosis. Ministerio de Sanidad, Servicios Sociales e Igualdad. 2013; Servicio de Evaluación de Tecnologías Sanitarias del País Vasco; Informes de Evaluación de Tecnologías Sanitarias: OSTEBAs [Accessed 05 February 2023]. Available from: [https://www.osakidetza.euskadi.eus/contenidos/informacion/2014\\_osteba\\_publicacion/es\\_def/adjuntos/sysadoas.pdf](https://www.osakidetza.euskadi.eus/contenidos/informacion/2014_osteba_publicacion/es_def/adjuntos/sysadoas.pdf).
  22. Gwinnutt JM, Wiecezorek M, Rodríguez-Carrio J, Balanescu A, Bischoff-Ferrari HA, Boonen A, et al. Effects of diet on the outcomes of rheumatic and musculoskeletal diseases (RMDs): systematic review and meta-analyses informing the 2021 EULAR recommendations for lifestyle improvements in people with RMDs. *RMD Open*. 2022;8:e002167, <http://dx.doi.org/10.1136/rmdopen-2021-002167>.
  23. Grupo Mediforum S.L.U. Web oficial Mediforum (Accessed 04 March 2023). Available from: <http://www.mediforum.es/>.
  24. Monfort J, Carné X, Abarca B, Giménez S, Romera M, Möller I, et al. Experts document about an adequate utilization of SYSADOAs in controversial clinical situations. *Reumatol Clin (Engl Ed)*. 2021;17:595–600, <http://dx.doi.org/10.1016/j.reumae.2020.06.009>.
  25. Bruyère O, Honvo G, Veronese N, Arden NK, Branco J, Curtis EM, et al. An updated algorithm recommendation for the management of knee osteoarthritis from the European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO). *Semin Arthritis Rheum*. 2019;49:337–50, <http://dx.doi.org/10.1016/j.semarthrit.2019.04.008>.
  26. Amador Romero FJ. Medios de comunicación y opinión pública sanitaria. *Atencion Primaria*. 2004;33:95–8, [http://dx.doi.org/10.1016/s0212-6567\(04\)79357-9](http://dx.doi.org/10.1016/s0212-6567(04)79357-9).
  27. Trayer J, Rowbotham NJ, Boyle RJ, Smyth AR. Industry influence in health-care harms patients: myth or maxim? *Breathe (Sheff)*. 2022;18:220010, <http://dx.doi.org/10.1183/20734735.0010-2022>.
  28. Fickweiler F, Fickweiler W, Urbach E. Interactions between physicians and the pharmaceutical industry generally and sales representatives specifically and their association with physicians' attitudes and prescribing habits: a systematic review. *BMJ Open*. 2017;7:e016408, <http://dx.doi.org/10.1136/bmjopen-2017-016408>.
  29. Bishnoi M, Jain A, Hurkat P, Jain SK. Chondroitin sulphate: a focus on osteoarthritis. *Glycoconj J*. 2016;33:693–705, <http://dx.doi.org/10.1007/s10719-016-9665-3>.