



SEX ROBOTS – FUTURE AND TABOO – ETHICAL AND SOCIAL IMPLICATIONS ON WOMEN*

Eva Gengler, Stefan Lacina



KA210-ADU – Small-scale partnerships in adult education
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Executive Summary

Hyperfeminine artificial companions are no longer only science fiction. Several companies, including companies from the European Union, already produce robots for intimacy, sex, and love making. Researchers fear a backlash on women in general as well as an increasing objectification of the female gender because hypersexualized bodies of sex robots operate on paradigms of mere usability, while at the same time triggering the feeling of dealing with a woman. Furthermore, critics worry that female-appearing sex robots could push the problem of unrealistic body norms still further. In this paper we look at research and survey results from Germany, Spain, and Italy.

Societal dimension

help with a variety of tasks, from preparing lunch for children to providing companionship for elderly people. Discussion of the specific use of those robots raises questions about technical feasibility, responsibilities in an interprofessional setting, and risks such as privacy violations.

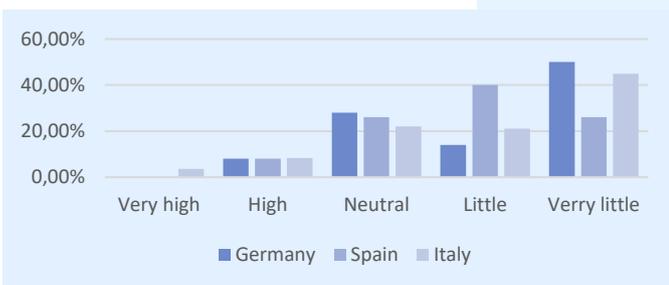
Ethical dimension

Ethical considerations are manifold. They include considerations on child sex robots, whether a robot might act as if in love, and whether the replacement of humans in bed and relationships is imminent. Researchers discuss aspects of property, rape, and prostitution. Overall, major ethical questions need to be answered.

Feminist dimension

Numerous research articles take on a feminist point of view, especially those from female researchers in the field. We outline risks and chances related to women like the increase of the objectification of women. Furthermore, we focus on the sexuality of women, which has been suppressed and tabooed for centuries.

Survey Results



Knowledge about Sex Robots per country



Perceived Risks or Chances of Sex Robots per Country

Conclusion

In this study, we have displayed and discussed a variety of German, Spanish, Italian and international research of scientists involved in the field of sex robots and the key results of our survey. Especially ethical and feminist concerns urgently need to be addressed to create a future of equal participation and gender equality alongside our robot companions.

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1. Introduction

Hyperfeminine humanoid robots have fed the imagination of large audiences for almost a century: Fritz Lang's *Metropolis* (1927) to Alex Garland's *Ex Machina* (2014) or Netflix' *Westworld* (2016). Today, however, we are very close to calling these science fiction fantasies reality. Humanoid robots gain momentum in all sorts of areas: Especially care work companies put their hope and investments in robots to ease the life and tasks of human workers. Also, romantic, and sexual companions are not only the protagonists of legends anymore. Several companies, including companies from the European Union, already produce robots for intimacy, sex, and love making. Even though, they are yet to be mistaken with a human being, their appearance and skills are quickly becoming more and more human-like.

Sex robots could realize new sexual possibilities and experiences and thus, many researchers strongly advocate for them (Kubes, 2019). Yet, when regarding the currently available sex robots produced by e.g. DS Doll (*DS Doll Robotics - DS Dolls & Ex Doll Robotics & Sex Robots UK*, n.d.) or RealbotiX (*RealbotiX*, n.d.), we seem to see pornographically sexualized females. They have big breasts, are mostly skinny, and look overall very young. Thus, a new perspective has been added to the discussion on the future of sex robots: Their effect on gender equality and women. Most prominently Kathleen Richardson - Professor of Ethics and Culture of Robots and AI - has campaigned since 2015 for a ban of sex robots, fearing a backlash on women in general, stronger violence against women, and children as well as an increasing objectification of the female gender (*Campaign Against Sex Robots*, n.d.).

Besides films, the media is also shaping the general view of the public about this new technology. Sex robots have repeatedly appeared in (online) newspapers in recent years (Ärzteblatt, 2019; Bellinghausen, 2019; Fröhlich, 2018; Mendgen, 2020; Nast, 2019; *Sex mit der Maschine - VDI nachrichten*, 2021). These media spotlights often cover emotional aspects either focusing on risks and feeding on fears or celebrating the new advantages for sex life and therapy. Media also rises concerns on the highly sexualized, mostly female modeled robots, which accord to exaggerated beauty ideals (Mendgen, 2020). Critics fear that this could push

the problem of unrealistic body norms once again (Fröhlich, 2018). The following Table 1 pictures how these fanciful representations of bodies are presented in media.



Table 1 Unrealistic body norms presented in media

Besides picturing those unrealistic body norms, "Harmony", seen on Picture 3 at Table 1, is frequently talked about in media. "She" is the prototype from the Californian sex robotics company RealbotiX. "Harmony" is not just a life-size rubber doll with big breasts, "she" can talk, listen, and sense touch (Fröhlich, 2018). "Her" mood can deteriorate or brighten during the day, "she" can be tired or hungry or have desire, desire for sex (Fröhlich, 2018). It is still a niche market, and the manufacturers are mostly based in the USA and Asia but the market for the new generation of interactive sex dolls is growing (Fröhlich, 2018). "Male" sex robots make up 10 to 15 percent of the sales (Fröhlich, 2018). Hence, the great majority of sex robots produced have a "female" appearance. In a heteronormative world, those predominately hypersexualized robots are designed to attract the male gaze.

International polls and studies have indicated that especially men are remarkably open to this new technology. The results of a study carried out among more than 1,470 people in Spain by the online portal Platanomelón.com show that 33% of men say they would have sex with a robot with Artificial Intelligence via mobile phone. This figure drops to 14% in the case of women (eEconomista.es, 2018). The results of polls of four countries (Germany, US, UK, and the Netherlands) indicate that the market for sex robots is notably smaller for women. It was shown that females are at least twice less likely than males to want robot intimacy (Sharkey et al., n.d.). The topic of sex robots also has reached politics. Sex with robots – is that ethically acceptable? This is a commonly considered question and one, when asked, the CDU/CSU and SPD parliamentary groups in the German Bundestag said they had not yet reached a position on the issue (Bellinghausen, 2019). "However, we believe that the topic is extremely relevant," admits Marcus Weinberg, family policy spokesman for the CDU/CSU (Bellinghausen,

¹ <https://www.schmuserie.com/blog/sexroboter-der-sex-der-zukunft>

² <https://www.economista.es/tecnologia/noticias/7011096/09/15/Los-robots-sexuales-se-topan-con-la-etica-inician-una-campana-para-prohibirlos.html>

³ <https://www.gq-magazin.de/leben-als-mann/beziehung/realrobotix-date-sexroboter-harmony>

2019). The German Ethics Council takes a different view: "In June, we will discuss nursing robots in the Ethics Council, but we have not yet given any thought to sex robots." (Bellinghausen, 2019). On the contrary, in the USA, the *Creeper Act* has banned the import and sale of sex robots that look like children since 2018 (Bellinghausen, 2019). Canada is considering a similar law (Bellinghausen, 2019).

Thus, our question of research is as follows: How do sex robots impact our society in general and the life of women and gender equality in particular? By answering this question, we present insights in the comparison between the three participating countries: Germany, Spain, and Italy. These are all located in Western Europe, yet all have unique histories, cultures, and traditions.

In this paper we will regard both the risks as well as the chances of the future with sex robots. Besides focusing on their relation to women, we will also discuss the taboo subject of women's sexuality. In addition, we will present the results of our anonymous survey.

2. Theoretical Background

For this study we focused our attention on German speaking and in Germany located scientists with research on ethical, societal, and feminist dimensions on sex robots. Moreover, we include aspects of studies found in Spain and Italy.

2.1 Societal dimension

Humanoid robots are robots that are modelled after humans. On one hand, robots are designed as humanoid robots because in this guise they can interact better in human environments. On the other hand, the development of such robots also serves to supplement humans in societies with declining populations. They are designed to take on specific social roles, such as keeping people company. (Alesich & Rigby, 2017)

Other robots, like the "Mark 1" robot, modeled after actress Scarlett Johansson, is designed to help with a variety of tasks, from preparing lunch for children to providing companionship for elderly people. This service aspect is particularly focused in current discussions in Germany regarding assistance with care and therapy (Graf et al., 2020).

Discussion of the specific use of a social robot raises questions about technical feasibility, the need to redesign organizational processes, responsibilities in an interprofessional setting, and the risks associated with robotic use, such as privacy violations (Bendel, 2015, 2017, 2018). An issue, which appears little in public discussion, is consumer protection and how to regulate the dangers associated with sex robots. It could be problematic if a human is kissing a sex

robot because the robot's lips could be made from lead paint or some other toxic substance.

2.2. Ethical dimension

Sex robots have been widely discussed in research for years. This includes research in computer sciences, psychology, and ethics. Hardly any research on sex robots does not mention ethical consideration at all. This shows how great a change for society interacting and having maybe even relationships with sex robots is.

Names that need to appear in a paper on sex robots are certainly at the very least Donna Haraway with her well cited work *A Cyborg Manifesto* (1985), David Levy – author of the book *Love and Sex with Robots: The evolution of human-robot relations* (2008), Kathleen Richardson – initiator of the *Campaign Against Sex Robots* (2015), John Danaher – author of the book *Robot Sex: Social and Ethical Implications* (2017), and Jason Lee – author of the book *Sex Robots: The Future of Desire* (2017). Themes discussed in literature on the ethics of sex robots vary from, whether society is ready for sex robots (Ma et al., 2022; Scheutz & Arnold, 2016), whether it is ethical to program humans that might be misled (Nyholm & Frank, 2019), whether consent is a relevant attribute in consideration of sex with robots (Frank & Nyholm, 2017), and whether child sex robots ought to be restricted (Danaher, 2019; Gordon & Nyholm, 2021). Especially Richardson (Richardson, 2016a, 2016b, 2017, 2019) perceives sex robots to be a possibly unethical future, and therefore, calls for a ban on the creation and distribution of sex robots.

The discussion is ongoing. To give an overview, we have clustered the relevant literature by themes discussed or mentioned in scientific literature. These clusters can be seen in *Table 2*. The topics most prominently discussed include controversies, risks, possible future evolvement of sex robots, relationships, affection, and love as well as gender related aspects.

| Ethical aspects | | | |
|--|-------------------------------------|---|---------------------------------|
| Controversies | | Risks | |
| Definition of sex vs. masturbation | Child sex robots | Security and privacy | Addiction |
| Future of sex robots | | | |
| Uncanny Valley | Sentience, conscience, robot rights | Moral machine | Post-humanist, new materialist |
| Relationships, affection, love | | | |
| Human to robot relationship, companionship | Affection, love, bonding | Effects on human to human relationships | Replacement of humans by robots |
| Gender related aspects | | | |

| | | | |
|---------------------------------------|--|---------------------------|---|
| Stereotypical gender roles, male gaze | Property, slavery, constant availability | Parallels to prostitution | Consent, rape, violence, male dominance |
|---------------------------------------|--|---------------------------|---|

Table 2: Ethical aspects of in academic literature

2.3 Feminist dimension

Risks of sex robots also have feminist dimensions. Numerous research articles bring up a feminist point of view, especially from female researchers. In this chapter we will outline risks and chances related to women. Firstly, we will focus on the taboo subject “women’s sexuality”.

2.3.1 Women’s sexuality: A taboo and how it creeps into robotics

Sexuality is the most intimate and secret part of people’s lives (Zara, 2018) and that of women has been tabooed for centuries.

Two articles found that female sexuality has changed in a mostly positive direction (Kangyal, 2020; Neal, n.d.). Taboos about the sexuality of women have been broken. But other problems might occur, especially regarding consent. Most women tend to give consent to sexual activities they are not keen on (Neal, n.d.). Psychologist and family therapist Sandra Konrad mentioned that especially young women allow sexual interactions, which do not give them any sexual satisfaction, just to sexually please their partners (Kangyal, 2020). The reason is the lack in awareness, the insufficiency of setting limits and the fear of being misperceived (Kangyal, 2020; Neal, n.d.).

Sexism is also represented by robotics. Particularly one development has gained momentum in recent years. With the humanization and feminization of robots the predominantly “female” systems are becoming more and more humanoid, levelling former differences of the norm of the feminine in society, politics, and culture. The reason for the feminization could be that women are generally excluded from the development, creation, and use of intelligent technological systems (Benedikter & Gruber, 2019). This development could lead to a perpetuation of existing gender norms.

This could lead to a continuation of discriminatory behavior towards women. Female appearing robots revive traditionally female role patterns: serving, smiling, and being friendly. Thus, a devaluation of the image of the feminine could occur. The connection between the concept of serving and the “female” appearance could lead to a cultural return of retroactive female stereotypes and role models. The creation of female appearing robots seem to maintain the objectification of women. (Benedikter & Gruber, 2019)

2.3.2. Objectification of the feminine

For international techno-feminists it is clear that technology is never gender neutral (Bath, 2013; D.

Haraway, 1988; Oudshoorn & Pinch, 2005; Wajcman, 1991). But no other new technology is gendered more obviously than sex robots (Kubes, 2019).

Kathleen Richardson notes that the use of porn-star like, female appearing sex robots created to give pleasure will exacerbate a sexist, degrading and objectifying image of women. Existing power relations and gender stereotypes, thus, will be continued (Richardson, 2016a, 2016b).

Sophie Wengerscheid, a cultural studies scholar at the University of Ghent, Belgium, supports Richardson’s theses by saying that the hypersexualized bodies of sex robots operate on paradigms of mere usability, while at the same time triggering the feeling of dealing with a woman (Wengerscheid, 2019).

Kate Devlin, international Senior Lecturer in Social and Cultural Artificial Intelligence, King’s College London and sex robot expert also classifies the resemblances between sex robots and women as problematic for women. She agrees with Richardson that contemporary sex robots negatively impact perceptions of the female body (Devlin, 2018). Also, Alexander Matthias Gerner, post-doc at the University of Lisbon, points out that sex robots are designed after a pornographic image of visualized women. They look like mechanic sex-ready women and pretend to be looked at as “female”, ever-willing sex objects (Gerner, 2019).

2.3.3. Chances for Women

Not only risks but also chances for women evolve regarding sex robots. Most prominently David Levy points out those chances in his best-selling book “Love + Sex With Robots: The Evolution of Human-Robot Relationships” (2008). In a different paper Levy (2013) argues that physical interaction with sex robots would allow for an ever-changing lover, without real emotional involvement, without controversy, without the relationship wearing out and no longer being as alive and exciting as it was in the beginning, or, more simply, without the risk of rejection or abandonment.

Besides this, technology should not be seen as an unfavorable field of action. By being more involved in this branch an opportunity to fight for women’s rights could occur. A higher involvement of women in technological development and in designing tech devices might ultimately strengthen the role of women in society (Benedikter & Gruber, 2019).

Furthermore, sex robots could contribute to shape post humanistic sexualities leaving the binary logic of heteronormative dualism behind. They certainly do not have to look humanoid at all. There is simply no need to. They could just imitate human-like characteristics like skin with soft haptics like feathers, fur or nylon. It may need an orifices or phallic element

for sexual pleasure, but it does not necessarily need to be shaped as a human to fully function as a sex robot (Kubes, 2019). New networks of desire could be created by new technologies at best when the focus will lay on their otherness but not their human (Wennesscheid, 2018).

3. Quantitative Method: Survey

To receive an understanding of the current level of knowledge about sex robots on the ground in Germany, Spain, and Italy we created an anonymous online survey. This survey was created in English and translated into Spanish to use the same sample of questions in all participating countries. On one hand, we wanted to discover the extend of knowledge in each country and on the other hand we wanted to make it comparable with the results in the other countries. The survey consisted of fifteen questions. Firstly, two questions concerned the gender identity and the age of the person filling out the form. These made it possible to evaluate the results in relation to gender and age groups. All questions were closed questions and could be left unanswered and thus, could be skipped. The first set of questions reviews the knowledge that people have about sex robots. Moreover, the questions measured the extend of risks and chances. A second set of questions concentrated on the sexuality of women, whether the participants felt differently, when a “human” or a “woman” buys a sex robot and if sexuality in general still was a taboo for women. The survey was conducted in April – May 2022.

4. Survey Results

The results of the survey are presented in the following table and figures. As can be seen in Table 3 the number of participants varied per country. Moreover, the gender distribution varied per country with Italy being the most balanced.

| Amount of participants | | | | | |
|------------------------|-----|-------|------|-------|----|
| Germany | | Spain | | Italy | |
| 50 | | 50 | | 109 | |
| Reported Gender | | | | | |
| Female | | | Male | | |
| GER | ESP | IT | GER | ESP | IT |
| 31 | 32 | 50 | 19 | 15 | 56 |

Table 2: Descriptive Statistics

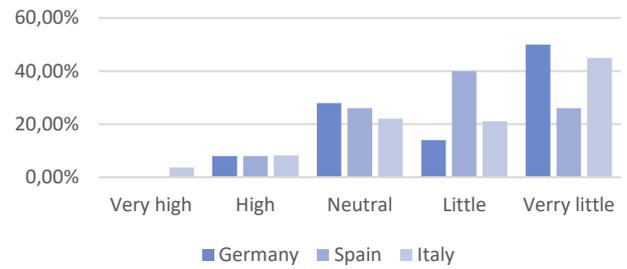


Figure 1: Knowledge about Sex Robots per country

Figure 1 depicts the amount of knowledge the participants had about sex robots. In general, the knowledge varied between medium and very little in all countries with the tendency to very little. We can see country specific differences.

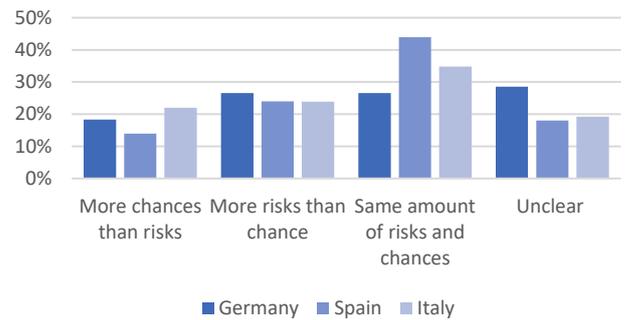


Figure 2: Perceived Risks or Chances per Country

Overall, more participants believe that sex robots carry more risks than chances than the other way round. Yet, most believe that there are equal risks and chances. This is similar for all countries.

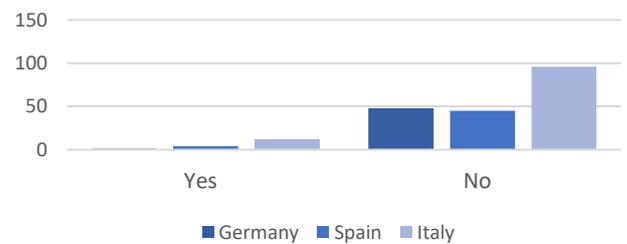


Figure 3: Is women's sexuality a taboo topic for you?

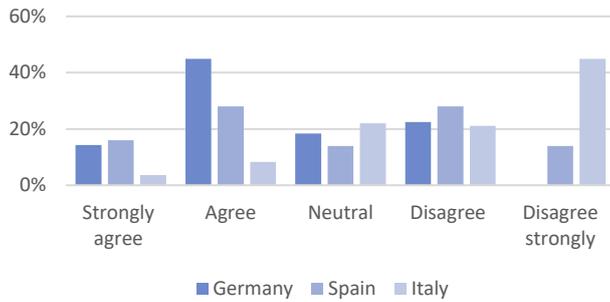


Figure 4: Women's sexuality - A Taboo Topic in Society?

Figures 4 and 5 interestingly show, that hardly anyone of the participants regards the sexuality of women as a taboo topic. Yet when asked whether it is a taboo topic in society, the answer is much less clear. German participants agree with this fact and Italian participants strongly disagree. There seem to be cultural differences as well as differences in participants own view and the society's they live in.

The next three figures display the answers to the question to what extend they would agree with the following situation.

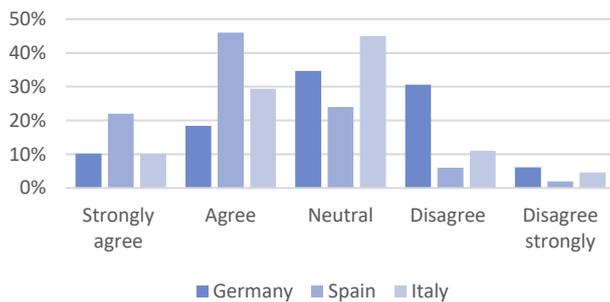


Figure 6: Situation 1 – A woman buys a sex robot to use it for sexual intercourse.

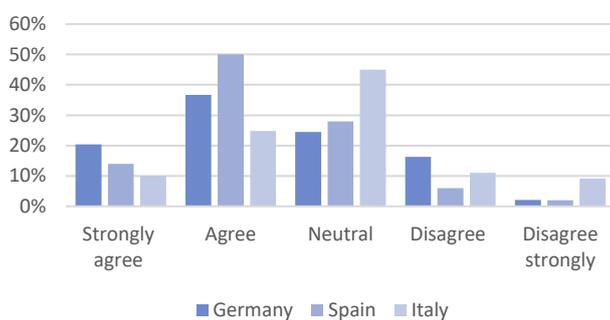


Figure 7: Situation 2 – A human being buys a sex robot to use it for sexual intercourse.

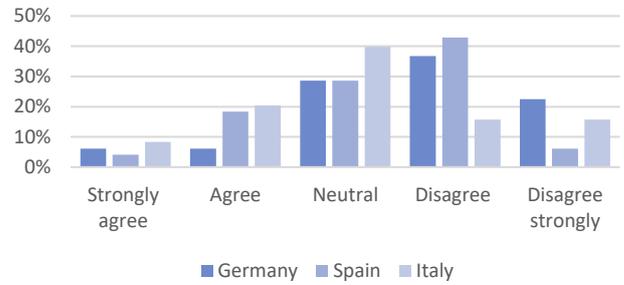


Figure 8: Situation 3 – Your partner buys a sex robot to use it for sexual intercourse.

Even though the situations seem so similar, the answers look different for each of them. More participants agree and less disagree with the situation, when the person acquiring a sex robot is a human than when it is a woman. Participants of all countries and both genders are much more reluctant, when their own partner where to buy a sex robot.

5. Discussion

In our discussion we firstly revised the results of our survey. In Figure 3 we found interesting that most participants believe that there are equal risks and chances. Yet, after our research on various German, Spanish, Italian and international papers and articles, our team concluded that – how the development and design of sex robots is nowadays – the risks overshadow the chances by a long shot. We believe that this disparity is due to the lack of empirical data and studies on risks and chances of sex robots in relation to women. We also think that the media and film have a big impact on the believes of society about this topic. The disparity between Figures 4 and 5 was not expected by us because every person is also representing the society. Yet, the opinion about the sexuality of women is more advanced than the believes of the general public. It seems like it will take more time to educate society about this topic due to its conservative and restrained ideas. What we find interesting in Figures 6 and 7 is that more participants agreed with the situation that a human buys a sex robot to use it for sexual intercourse compared to women buying one for the same reason. Our team assumes that this disparity is since the sexuality of women is tabooed and suppressed for centuries.

We think that female-appearing sex robots might lead to a backlash regarding the sexuality of women. Likewise, the results of our literature and desk research underline this development. A fair number of renowned scientists genuinely believe

that female-appearing sex robots will have negative consequences on the position of women in society. There will be an increase in the objectification of women as well as a continuation of discriminatory behavior towards women. Empirical data does not exist, yet the opinion of these researchers is a strong indicator that this development could evolve. Still there are many unresolved questions regarding sex robots so we think that politics and society should keep an eye on this potentially high-impact technology. There is also a research gap but, in our opinion, not only researcher can get active regarding this development but also the public.

Döring and Poeschl (2019) conclude that due to the lack of empirical data and studies on risks of sex robots, the academic and public debates will remain contentious. However, according to the current state and dynamic of technological development, sex robots without doubt will be present soon.

Firstly, this paper has several limitations. The literature research in Germany was more extensive than in Italy and Spain. Thus, many more references were found in Germany. It is unclear, whether this accurately reflects the existing number of papers per country or is due to a higher level of expertise of the researchers in Germany. Consequently, this paper refers to more German (speaking) scientists than to Spanish or Italian scientists. Moreover, the survey has mostly been distributed to friends and acquaintances and thus, the generatability is limited. Moreover, the number of participants varies considerably from 50 to 100 participants per country. Still, this study can provide insights into the view of people on sex robots, which are not involved in research.

6. Conclusion

In this study we have displayed and discussed a variety of research of scientists involved in the field of sex robots. Overall, we can conclude that several German (speaking) and a few Spanish, and Italian scientists are researching in this area and contributing to the international discussion. With almost half of the extracted literature written by female researchers, the area of sex robots is an exception in the field of technology and quite in contrast to the participation of women in the development of sex robots. Moreover, we find a very interdisciplinary collection of researchers coming from social sciences, medicine, computer sciences, ethics, gender studies, and psychology. This demonstrates the expected wide implications for society by this new technology. Our research, however, has shown that

many people are yet unaware of the risks and impacts to come. And moreover, that for women sexuality still is different than for men – at least in a societal perspective. Thus, especially ethical and feminist concerns urgently need to be addressed to create a future alongside our robot companions, which is not detrimental for gender equality and equal participation.

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