

WOMEN'S STRUGGLES REFLECTED IN RADIOACTIVE (2019) MOVIE

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Abstract

Women's struggle in the workplace remains persistent, particularly in male-dominated scientific fields where gender discrimination affects professional development through limited access to resources and opportunities. The biographical movie *Radioactive* (2019) portrays these challenges through Marie Sklodowska Curie, the pioneering female scientist who faced gender discrimination in early 20th-century scientific academia. This research aims to analyze the gender inequality and discrimination faced by Marie Curie as depicted in *Radioactive* (2019) movie and examine the liberal feminist characteristics using Betty Friedan's liberal feminist theory as analytical framework. This study uses descriptive qualitative method with feminist approach, focusing on dialogue analysis and character portrayal in biographical movie. Data collection involves observation of key scenes and literature study of feminist theories, applying Betty Friedan's liberal feminist theory to examine gender discrimination and women scientist characteristics. The analysis reveals that Marie Curie faced gender discrimination through four categories: workplace inequality, funding discrimination, hostile environments, and institutional access denial. The study identifies four key liberal feminist characteristics in Marie's character: intellectual independence, courage in confronting authority, determination despite obstacles, and resistance to subordinate gender roles. The findings demonstrate continuity between early 20th-century and contemporary gender discrimination pattern while validating continued relevance of liberal feminist theory approaches. This research contributes to feminist movie studies by providing systematic framework for analyzing gender representation in biographical movie and establishing foundations for future research on feminism in media.

Keywords: biographical movie, feminism, gender discrimination, *Radioactive*, women scientist

INTRODUCTION

Women struggles in the workplace remains a central issue across multiple industries. Women often face systemic barriers to career advancement, opportunities, and recognition, particularly in male-dominated fields. These struggles are deeply rooted in gender-based societal expectation that have relegated women to secondary roles in both home and workplace. Society frequently discriminates against women in the workplace, academic institutions and forums due to misconceptions that women are inherently less intelligent and physically weaker than men (Rosemary Tong, 2009).

The biographical movie *Radioactive* (2019), directed by Marjane Satrapi, provides a compelling lens through which to examine these enduring issues. Based on Lauren Redniss's novel biography *Radioactive: Marie and Pierre Curie: A Tale of Love and Fallout*, the movie portrays the life of Marie Sklodowska Curie, the first woman who win a Nobel Prize and the only person who win Nobel Prize in two different sciences. The narrative depicts Marie's relentless struggle against gender discrimination in early 20th-century scientific academia, from being denied laboratory access to facing skepticism about her research capabilities solely based on her gender.

The movie portrays Marie's constant fight to overcome gender inequality and achieve recognition for her scientific contributions in a male-dominated world. This struggle reflects the broader issues of gender discrimination that women continue to face in professional environments. The movie presents Marie as embodying characteristics of liberal feminism, fighting for equal rights and opportunities in all areas of life, including work, roles, positions, and social involvement.

This research is important because it addresses the ongoing relevance of gender inequality issues in professional settings. Many people still believe women's primary role is to care for children and family, viewing them as weaker than men. According to Tong (2009) equal opportunities for success in the public sphere should be granted to women and men. Liberal feminists argue that gender justice requires making the rules fair and ensuring no participants face systemic disadvantages in competing for society's goods and services (Tong, 2009, p.15). According to Friedan (1963, p. 104) it has become common to dismiss feminism and pity those who fought for women's rights to education, careers, and voting. However, both women and men possess reason and morality that can be developed and this capacity for rationality allows women to become autonomous decision-makers (Rosemary Tong, 2009).

Therefore, this study aims to achieve two primary objectives: First, to analyze the gender inequality and discrimination faced by Marie Curie as depicted in the *Radioactive* (2019) movie. Second, to examine the characteristics that portrayed Marie Curie as a liberal feminist figure. Through these objectives, this research contributes to understanding how biographical movie can serve as vehicles for exploring feminist themes and gender struggles in scientific fields during the early 20th century.

LITERATURE REVIEW

This study uses the liberal feminist theory developed by Betty Friedan in her book *The Feminine Mystique* (1963). Friedan argued that after World War II, many American women were forced into narrow roles as housewives and mothers. Even though they had material comfort, they experienced a deep and silent unhappiness. Friedan famously named this feeling "*the problem that has no name*" and described it as *a quiet crisis hidden behind daily routines. As she writes, "Each suburban wife struggled with it alone. As she made the beds, shopped for groceries, matched slipcover material... she was afraid to ask even of herself the silent question—'Is this all?'"* (Friedan, 1963, p. 44).

Friedan believed that this problem was not personal failure but a result of social conditioning. Women were told that true fulfillment could only come from being wives and mothers. Schools and media reinforced the idea that a woman's identity must be defined by others, not herself. She wrote, "It was a strange stirring, a sense of dissatisfaction, a yearning that women suffered in the middle of the twentieth century in the United States. Each woman struggled with it alone" (Friedan, 1963, p. 44). Friedan criticized how girls were educated not to seek knowledge for its own sake, but only to prepare them to attract a husband. She observed, "Why is it never said that the really crucial function, the really important role that women serve as housewives is to buy more things for the house?" (Friedan, 1963, p. 227).

In the movie *Radioactive* (2019), Marie Curie's life illustrates this struggle against gender roles. She insists on continuing her scientific research despite being rejected and underestimated because she is a woman. Her determination reflects the kind of female agency Friedan advocates: women who live for their ideas, values, and ambitions not only for domestic duties. Thus, this research applies Friedan's liberal feminist perspective to examine how gender discrimination is portrayed in the movie and how Marie Curie's character resists traditional gender roles by asserting her right to think, choose, and contribute to science and society.

The representation of women's struggles in movie has become an important research area in feminist media studies. Movies serve as powerful cultural tools that both reflect and shape how society views women's roles and challenges. Several researchers have studied similar themes of gender discrimination and women's struggles in movies, providing a foundation for analyzing the *Radioactive* movie.

Movies function as influential tools that shape gender perceptions. Manaworapong & Bowen, (2022) examine gender portrayal in Disney's *Mulan* adaptations and found that female characters increasingly use masculine communication styles while male characters show more feminine traits.

This research shows how movie actively changes gender norms rather than merely reflecting them. In a similar vein, Yıldırım et al., (2021) analyze Hidden Figures to understand how movies can both educate viewers and shift gender perceptions in science. Despite prevailing stereotypes, the movie portrays women as capable mathematicians and engineers, making it closely relevant to *Radioactive*, which also centers on women in science.

A broader perspective spanning centuries is offered by Matei et al., (2023) who studied gender representation in biographical movies from 1900 to 2017. They found a tendency for male filmmakers to focus on male subjects, while increased female participation behind the camera correlates with a rise in female-centered narratives. This finding adds context to the importance of films like *Radioactive* in expanding representation in biographical movie. Kool et al., (2022) contribute to this discourse by applying fourth-wave feminist perspectives to women scientists in movie. They identify the recurring “lonely heroine” trope, where women are portrayed as talented yet isolated. While acknowledging progress, they emphasize the ongoing need for more diverse portrayals, a concern that is also relevant in analyzing Marie Curie’s character.

In parallel, Chambers, (2021) argues for intersectional approaches in studying women’s representation in science-focused movies depicting. By comparing titles such as *Hidden Figures* and *Annihilation*, the study highlights the benefits of depicting women as part of professional communities rather than as solitary figures. Adding a technological dimension, Haris et al., (2023) utilize machine learning to analyze gender bias in movie scripts. Their findings, based on analysis, indicate that male characters are often portrayed as dominant and envious, while female characters tend to express more joyful or emotional sentiments. This computational approach provides quantitative evidence of gendered patterns in storytelling.

Although most of the studies above focus on movie, feminist analysis has also been applied to other media. Lestari & Nurochman (2022) explore liberal feminist values in popular music by analyzing Britney Spears’s songs, emphasizing themes of personal autonomy and resistance to patriarchal control. While their focus is outside the realm of movie, their study demonstrates that the representation of women’s empowerment is a recurring theme across various cultural forms. This show that the media landscape as a whole plays a critical role in shaping and challenging traditional gender roles, reinforcing the relevance of feminist readings across both visual and auditory narratives.

Taken together, these studies construct a framework for understanding how cultural products whether movie or music mirror and influence public perceptions of women’s struggles. The evolution from stereotypical portrayals toward more nuanced representations reflects a broader cultural shift. Nonetheless, existing research has yet to fully explore how biographical movies about pioneering women scientists navigate the intersection of early 20th-century accuracy, feminist messaging, and contemporary relevance. This study addresses that gap by examining *Radioactive* and its depiction of Marie Curie’s dual challenges as a woman and a scientist in early 20th-century Europe.

RESEARCH METHOD

This study applies a descriptive qualitative method with a feminist approach to analyze how woman’s struggles are represented in the *Radioactive* (2019) movie. Numerous empirical resources, including case studies, individual experience, reflections, biographies, interviews, observation, and interactive, visual, historical texts, are used in qualitative methods (Lincoln, 2018, p. 53). In this context, a feminist lens particularly liberal feminism is applied to explore gender inequality, discrimination, and the depiction of Marie Curie as a feminist figure.

The data in this research consist of primary and secondary sources. The primary data are taken from the *Radioactive* movie, directed by Marjane Satrapi, focusing on its characters, dialogues, and scenes that portray gender-related issues. Secondary data support the analysis and are derived from academic articles, journals, essays, internet sources, and previous research relevant to the topic.

This study uses observation and literature study as methods of data collection. Observation involves watching the movie carefully and repeatedly to identify key moments and character portrayals that reflect the research focus. At the same time, a literature study is conducted by collecting, reading, understanding, and analyzing theoretical materials and previous studies related to gender, feminism, and movie analysis. The process of data collection includes watching *Radioactive* multiple times to deeply understand the narrative and character development. The researcher identifies

the central character and relevant scenes, explores feminist theories particularly liberal feminism and collects supporting literature to enrich the analysis. Important information from both the primary and secondary sources is then recorded and interpreted. Data analysis is carried out through the feminist theoretical framework to examine how the movie portrays gender inequality and how Marie Curie's character is shaped as a symbol of feminist resistance within a male-dominated scientific community. The research concludes by interpreting how the movie balances with feminist representation, and how it contributes to broader discourses on women's roles in science and society.

RESULTS AND DISCUSSION

The results of this study are presented in sequences according to the research flow. This research examines women's struggle for equality in the workplace through Marie Curie's character in the *Radioactive* (2019) movie. The analysis focuses on two main research problems; (1) The challenges of gender inequality and gender discrimination faced by Marie Skłodowska Curie and (2) The character traits that describes her as a liberal feminist.

Gender Inequality and Discrimination in Workplace

The analysis shows that Marie Curie faced repeated gender discrimination and inequality in her work as a scientist. By looking closely at the conversations or dialogues and interactions in the story, we can see several clear examples of unfair treatment. These happened in different situations and times, each showing how she was treated unequally at work and how it affected her career. The table below shows the types of discrimination and inequality found through the analysis of the dialogue.

Table 1: Gender Discrimination and Inequality Challenges Faced by Marie Curie

Scene Context	Dialogue	Duration	Discrimination Type	Discrimination Impact
Laboratory equipment removal	<i>"Professor Lippmann, I want to protest in the strongest possible terms. My equipment was moved again last night."</i>	0:04:15 - 0:04:20	Workplace inequality	Forced laboratory exclusion
Constant criticism and blame	<i>"Madam Curie, all I can see is an impractical measure proposed by a woman I know to be eminently practical."</i>	0:05:03 – 0:05:10	Hostile environment	Physiological pressure
X-ray technology proposal rejection	<i>"Then your lack of foresight in presenting me, constantly, with demands is something that will teach all of us a valuable lesson."</i>	1:27:18 – 1:27:23	Funding discrimination	Limited research resources
Battlefield medical assistance refusal	<i>"I need funds, I need access, I need the ability to go out on the battlefields."</i>	01:27:23 – 01:27:26	Access denial	Prevented humanitarian work

The gender inequality and discrimination documented in Table 1 demonstrates what (Soleman, 2020) describes as gender disparity, where men typically hold superior positions in social, economic, and political areas. Professor Lippmann's dismissive treatment, which resulted in Marie's removal from the laboratory, exemplifies institutional bias against women in scientific fields. This

discrimination extends beyond simple workplace inconvenience to life-threatening consequences when Marie's practical proposals for mobile X-ray units were rejected based solely on gender bias.

These findings align closely with Yıldırım et al., (2021) analysis of Hidden Figures, which documents similar discrimination faced by African American women mathematicians at NASA. Both movies reveal how institutional discrimination occurs through resource or access denial, professional isolation, and constant questioning of women's competence despite demonstrated expertise. However, while Hidden Figures shows resistance through professional community support, *Radioactive* portrays Marie's struggle as more individualistic.

The discrimination also mirror those identified by Azzizah S (2020) in analyzing workplace discrimination faced by Black Women, particularly the dual burden of proving competence while facing hostile work environments. Marie's experience of having her "lack of foresight" criticized while simultaneously being denied opportunities shows the double bind that faces by professionals continue to face across different contexts and identity categories.

According to Saddique Ansari (2020), workplace discrimination occurs when workers receive different treatment based on non-economic factors such as gender. Marie's experience perfectly shows this definition, as her scientific qualifications and practical proposals were overshadowed by gender prejudice. This supports Betty Friedan's (1963, p. 86) argument that when women were seen as humans with unlimited potential equal to men, anything that stopped them from reaching their full potential becomes a problem requiring systematic solution.

Liberal Feminist Characteristics

The second major theme reveals Marie's embodiment of key characteristics associated with liberal feminist ideology. The analysis identifies specific behavioral and verbal that align with Betty Friedan's theoretical framework.

Table 2. Liberal Feminist Characteristics in Marie Curie's Character

Feminist Traits	Dialogue	Duration	Scene Context	Liberal Feminist Principle
Resistance to authority	<i>"Professor Lippmann, I want to protest in the strongest possible terms."</i>	0:04:15 - 0:04:20	Direct confrontation with institutional head	Rejection of subordinate gender roles
Intellegence	<i>"Do you not understand we've already changed science forever?"</i>	0:33:01 – 0:33:03	Scientific achievement recognition	Intellectual independence
Brave	<i>"Quite. It's a question of respect, and you have respected me now."</i>	01:27:09 – 01:27:11	Confronting authority discrimination	Fighting for equal treatment
Determination	<i>"this is my last fight. And I will win it"</i>	01:27:38 – 01:27:41	Persistence despite illness	Self-determination

Manaworapong & Bowen (2022) observe that strong female characters increasingly adopt assertive communication styles traditionally associated with masculine discourse. Marie's direct confrontation with Professor Lippmann shows rational argumentation and refuses deferential communication expected of women in her era. Similarly, the characteristics documented in Table 2 parallel those identified by Lestari & Nurochman (2022) in their analysis of liberal feminist values in popular culture. Their emphasis on personal autonomy and resistance to patriarchal control directly related to Marie's refusal to accept institutional limitations based on gender. However, while their study focuses on contemporary artistic expression, this analysis shows how these same liberal feminist

principles manifested in early 20th-century contexts through individual professional resistance.

Marie's intelligence serves not merely as personal attribute but as challenge to gender stereotypes, aligning with Cherry's (2024) components of intelligence: reasoning, logic, planning, and problem-solving. Her declaration that "we've already changed science forever" shows intellectual confidence that Friedan (1963, p. 328) associated with "women of spirit and intelligence who have refused to 'adjust' as housewife". The brave displayed throughout the movie represents what McGarvie (2024) defines as our ability to act despite our fear, rather than in the absence of it. Marie's persistence in confronting institutional discrimination while facing personal and professional consequences embodies the liberal feminist ideal of individual agency as catalyst for systematic change.

Marie's characteristics shows Friedan's (1963, p. 208) observation about talented, driven women who "braved competition, overcame prejudice, and made sacrifices in order to pursue their ambitions". Her determination in declaring "this is my last fight. And I will win it" reflected the liberal feminist emphasis on self-determination and individual responsibility for challenging discrimination systems.

Contemporary Relevance and Implications

The discrimination, inequality, and feminist traits found in this analysis are still very relevant to today's discussions about gender equality in STEM (Science, Technology, Engineering, and Mathematics) fields. The barriers that Marie Curie faced in the early 1900s still happen today in schools, universities, and research centers. This supports what Betty Friedan said that real change needs both personal action and changes in the system. Recent research shows that women in STEM still face similar problems, like limited access to resources and having their intelligence questioned. This shows that even though more women are now represented, many deep-rooted problems still exist.

The way the movie shows Marie's liberal feminist traits also gives useful lessons for today's feminist movements in STEM. It shows that standing up as an individual and challenging unfair systems can go hand in hand. While newer movies often focus on group efforts, *Radioactive* reminds us that individual resistance still matters even if it has its limits.

Study Limitations

This research recognizes some important limitations that affect how broad and general the findings can be. First, the analysis is based only on a movie version of Marie Curie's life, not on original documents from the early 1900s. This means the results might be influenced by how the filmmakers chose to tell the story, which may not fully match the real events. Also, since the study focuses on just one biographical movie, it doesn't allow for comparisons with other time periods, cultures, or professions. The research uses liberal feminist theory, which helps provide useful insights, but it doesn't include intersectional factors like class, nationality, or other parts of Marie Curie's identity that may have shaped her experiences. Future studies could combine liberal feminism with intersectional feminist theories to give a more complete picture of the challenges women face in their careers.

The fact that the story takes place in Western Europe in the early 20th century also limits how the findings apply to other parts of the world today, where gender discrimination may look different due to cultural or institutional differences. The research would also be stronger if it used more types of data and compared several movies, not just one. That way, the results would be more reliable and balanced. This study mostly looks at workplace discrimination and Marie Curie's personal traits. It may miss other big factors like social, economic, or political conditions that also affected her life. Focusing only on liberal feminist ideas might leave out other feminist viewpoints that could explain her experience in different ways. These limitations point to useful directions for future research, especially studies that use intersectional approaches or compare multiple biographical movies about women scientists.

Conclusion

This research successfully analyzed women's struggles in *Radioactive* (2019) movie through

Betty Friedan's liberal feminist theory, answering both research questions. First, Marie Curie faced gender discrimination through workplace inequality, funding discrimination, hostile environments, and institutional access denial, shows how institutional barriers undermined women's professional development in early 20th-century scientific institutions. Second, Marie embodied key liberal feminist characteristics: intellectual independence, brave in confronting authority, determination despite obstacles, and resistance to subordinate gender roles, aligning with Friedan's emphasis on individual agency and rejection of traditional domestic limitations. This study contributes to feminist theory and film studies by expanding liberal feminist analysis to biographical movies and providing a systematic framework for analyzing gender representation in movie. The findings bridge early 20th-century and contemporary gender equality discourse, showing continuity between past and current discrimination while validating the continued relevance of liberal feminist approaches. Marie Curie's portrayal confirms that women's full participation in professional life requires both individual agency and systematic institutional change, establishing a foundation for future research on gender representation in media.

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