

## GENDER IMBALANCE IN THE MARITIME INDUSTRY IN POLAND: IMPEDIMENTS AND INITIATIVES TO IMPROVE WOMEN POSITION IN MALE-DOMINATED INDUSTRY

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**Purpose:** The research aims to analyze the situation of women in maritime industry in Poland over the years, focusing on employment trends and the participation of women in maritime-related academic programs. Additionally, the research will explore the challenges women face and propose potential solutions to overcome these barriers to improve gender equality.

**Design/methodology/approach:** To achieve the study's objectives, bibliometric analysis and systematic literature review were conducted to examine previous research on gender inequality in the maritime industry. Additionally, a statistical analysis was performed to identify the share of women in the maritime industry and in maritime-related academic programs in Poland.

**Findings:** The study reveals an increasing trend in the participation of women in Poland's maritime industry, both in education and employment. The paper provides insights into the challenges and strategies for achieving gender equality in the maritime industry. The obstacles women face in the male dominated industry should be addressed not only at the governmental level but also at the organizational level, with required engagement of both authorities and business leaders.

**Research limitations/implications:** The conducted analysis is restricted only to female employment in one country within a specified industry. A comparative study of women's position in male-dominated industry across different European countries would allow for an expanded context of gender inequality, especially its roots, efforts to combat gender stereotypes, and changes in corporate culture.

**Practical implications:** Practical steps include implementing comprehensive gender equity policies, enhancing educational programs to include gender sensitivity, and creating mentoring and networking opportunities for women. By adopting best practices from other countries and focusing on both governmental and organizational levels, a more inclusive and equitable workplace can be created.

**Originality/value:** This paper offers new insights into the trends and challenges faced by women in this male-dominated sector. Additionally, this study contributes to the broader literature on achieving gender equality and diversity in workplaces by compiling practical initiatives undertaken not only in the maritime industry but also in other male-dominated industries.

**Keywords:** gender inequality, gender stereotypes, male-dominated industry, maritime industry.

**Category of the paper:** Research paper, Literature review.

## 1. Introduction

The gender imbalance in the maritime industry is a global issue (MacNeil, Ghosh, 2017; Murali, Rajasekar, 2018). The maritime industry is traditionally male-dominated, making it challenging for women to enter and work within it. Women comprise just 2% of the total workforce (Jeevan et al., 2020). Women in the maritime industry face numerous challenges, including stereotypes, safety concerns, and prejudice against them (Şenbursa, Ozdemir, 2020). Despite efforts to bridge the gender gap, historical barriers within the maritime sector persist, impeding the full integration of women (MacNeil, Ghosh, 2017). Moreover, the gender gap is evident in the number of women enrolling in engineering programs and joining the labor market, impacting the development of solutions and products in the engineering sector (García-Holgado et al., 2018; García-Holgado, Gonzalez-González, 2021).

More broadly, gender inequality in the maritime industry is not a new problem. Maritime professions, among the oldest in the world, were regarded as a single-gender areas until the 20th century (Yılmaz et al., 2015). Historically, women have faced significant barriers in the maritime industry, with limited success in integrating into skilled production jobs in Norway's largest shipyard from 1965 to 1989 (Jeevan et al., 2020).

However, women played crucial roles as underwriters, creditors, commission agents, and policyholders, supporting maritime and colonial policies in pre-modern Europe (Wade, 2024). In the 1800s and early 1900s, some of the earliest women surgeons in England, America, and Russia began their surgical careers in military service or providing combat casualty care. Women at sea served unpaid nursing roles in the 1700s and provided informal medical care in the 1800s (Hernandez et al., 2024).

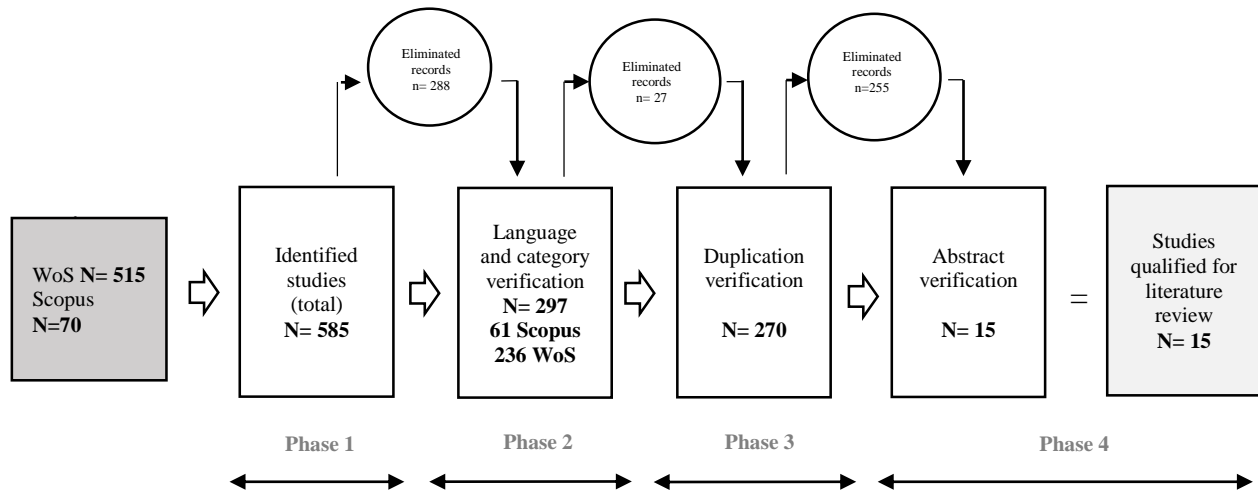
The historical and ongoing gender imbalance in the maritime industry is a complex issue that requires continuous effort to address. In this article, we aim to investigate the extent to which women currently face the difficulties in hiring and working in the maritime industry, identifying the barriers and potential solutions. Recognizing and valuing the contributions of women in this field is crucial for creating a more equitable and innovative industry. To achieve this, we first conducted a systematic literature review to identify the current situation and possible barriers in the male-dominated industries, particularly in the maritime sector. Next, we focused on the presence of women in the Polish maritime industry and we identified initiatives aimed at improving their position in this male-dominated sector. Through this analysis, we hope to provide insights and recommendations for fostering a more inclusive maritime industry.

## 2. Literature review design

The issues of gender imbalance in the maritime industry requires in-depth analysis. In the field of management, there is a growing interest in seeking mechanisms to find, refine, and synthesize the available evidence on a given research topic due to the increase in the number of publications (Riaño-Casallas, Rojas-Berrió, 2023). The systematic literature review (SLR) brings rigor and a structured framework to make sense of a sometimes confusing, fragmented, and overlapping area of management research (Clark et al., 2021). There are several existing guidelines on how to conduct and evaluate SLR, such as Snyder, 2019; Block, Fisch, 2020; Kuckertz, Block, 2021. One classification of SLR guidelines, which will be used in the current study, indicates the following steps: (1) Defining the research question; (2) Determining the required characteristics of primary studies; (3) Retrieving a sample of potentially relevant literature; (4) Selecting the pertinent literature; (5) Synthesizing the literature; (6) Reporting the results (Sauer, Seuring, 2023). The authors have defined the research questions (step 1) as follows:

1. What kind of impediments do women face when developing their career in maritime industry?
2. What is the percentage of female students of maritime departments in Poland, and how does this influence women's entry into the maritime industry?
3. What is the percentage of women employed in the maritime industry in Poland, and what is the percentage of women among new hires?
4. What initiatives are aimed at improving the situation of women in maritime industry, and what could be done in Poland?

Moving to the second step, bibliometric analysis and literature review were the primary methods used to conduct the theoretical study. Specifically, the temporal scope of the study covers the years 2000-2024, which outlines the changing role of women's employment in the maritime industry worldwide. The Web of Science Core Collection and Scopus were two knowledge databases used in search for relevant publications. The four-phase process of identifying the works qualifying for SLR is shown in Figure 1.



Note:

1. Query: (Women OR Female) AND (Shipyard OR Shipbuilding OR Maritime OR Male dominated industry) AND (Gender OR Inequality OR Stereotypes Or Pay gap) AND NOT (Military).
2. Knowledge base search criteria: WoS: topic, Scopus: title, topic, keywords.
3. Only documents such as articles, conference paper (Scopus)/proceeding paper (WoS) and book chapters were included in the study.
4. Publication period: 2000-2024.

**Figure 1.** The process of identifying documents qualifying for systematic literature review (SLR).

Source: Authors' elaboration based on Web of Science Core Collection and Scopus, 17.05.2024.

As shown in Figure 1, based on the search query formulated, specified category verification, language verification, and abstract verification, only 15 documents out of the 585 identified potentially relevant documents (step 3) were qualified for the detailed literature review. During the selection process (step 4), articles from database categories other than “business economics”, “women’s studies”, “engineering”, and “social issues” in the Web of Science database, as well as “social sciences”, “business, management and accounting”, “economics, econometrics and finance”, and “engineering” in Scopus database, including papers written in languages other than English, were eliminated. At the abstract evaluation stage, documents addressing the women’s roles and employment in various industries but not specifically in the maritime industry additionally were excluded from the sample. For example, many articles focused on women’s position in male-dominated industries, such as: technology (Miric et al., 2023), automotive (Evans-Krimme, 2023), aviation (de Andreis, 2023), oil (Kräft, 2022), construction (Kakad, 2002; Haupt, 2010; Ackrill et al., 2017; Chileshe, Hickey, Cui, 2020), ICT (Segovia-Pérez et al., 2020), industrial design (Walters, 2018), mining (Laplonge, 2016), aerospace (Yulia et al., 2020), engineering (Lourens, Truter, 2023), energy (Zarate, 2023), IT (Edwards, 2015). Furthermore, some excluded articles presented cross-sectoral studies concerning gender wage gap in construction, manufacturing, and urban farming industries (Ayalu et al., 2023), or architecture, civil engineering and construction occupations (Manesh et al., 2020). Other research highlighted the need to increase career equality, especially among young women in the transport industry (Rönnlund, Tollefsen, 2023) and in the creative communication industry, which is typically dominated by male leadership (Olsen, LaGree,

2023). One study emphasized the need to identify strategies for attracting and retaining females in construction industry (Tunji-Olayeni et al., 2017). Additionally, some research focused on eliminating inequalities that concerned women's leadership roles in organizations (Netchaeva et al., 2022; Wang et al., 2019) or stressed the necessity to explain the underrepresentation of women leaders within the industry (Bryan et al., 2021).

Moving to the step that concerns synthesizing the results of systematic literature review (5), the authors distinguished different impediments faced women in the maritime industry:

- Educational level:
  - Gender discrimination among university students: For instance, women cannot find jobs in the industrial diving sector due to restrictions of Turkish Labor Law, despite receiving maritime education (FiDan et al., 2020);
  - Influence of gender culture beliefs and social information: Gender culture beliefs significantly and negatively affect female students' choice of gender-atypical major. Social information from professional referents is also critical in determining female students' choice (Ku et al., 2017);
  - Deficiency in maritime education and training: Current education and training do not sufficiently prepare future seafarers to be gender and cultural sensitive (Belev et al., 2020);
  - Lack of education: There is a general deficiency in maritime education (MacNeil, Ghosh, 2017).
- Career development level:
  - Gender inequality at the recruitment stage (Tang, 2023);
  - Lack mechanisms for cultivating marine affairs talents and personnel recruitment: There is a lack of comprehensive systems for talent development and recruitment (Lee et al., 2022);
  - Difficulty finding a job as an apprentice onboard: Few companies employ women onboard (Szozda et al., 2014);
  - Different standards for leadership evaluation: Women are evaluated differently even though they are performing exactly similar to their male counterparts (Fjærli et al., 2017);
- Psychological and emotional impediments:
  - Various form of harassment: Harassment has significantly affects women's occupational health, safety, and wellbeing (Pike et al., 2021);
  - Gender stereotypes: Isolation, sexual harassment, discrimination, lack of amenities and support networks contribute to these stereotypes (MacNeil, Ghosh, 2017);
  - Feeling of loss in success: Women often feel they must sacrifice their family life for their career (Bhirugnath-Bhookhun, Kitada, 2017).

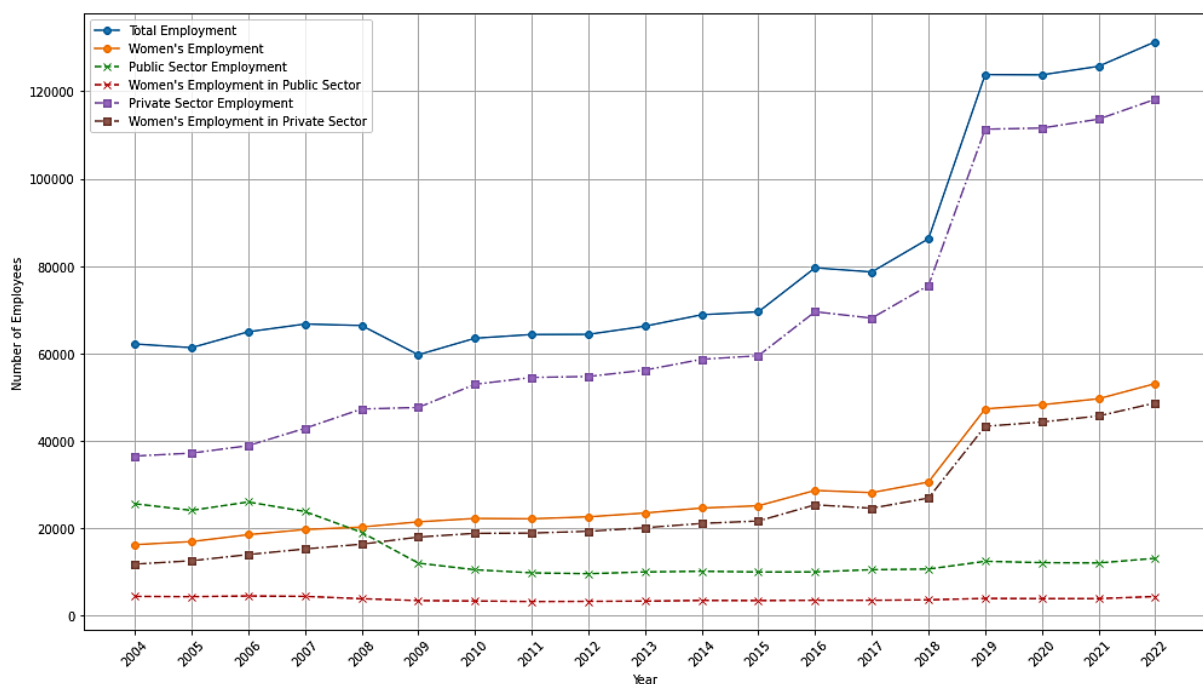
- Sociological impediments:
  - Work-family balance conflict: women managers struggle to balance work and family life (Bhirugnath-Bhookhun, Kitada, 2017; Vo et al., 2023);
  - Training practices reinforcing gender biases: The socialization of cadets is fraught with the values and symbols of a hegemonic masculinity, sidelining other genders (Acejo, Abila, 2016);
  - Nationality, race/ethnicity, and gender factors: These influence women's positions in stratified maritime workforce (Chin, 2008).
- Economic impediments:
  - Unequal employment opportunities (MacNeil, Ghosh, 2017);
  - Poor working conditions lead to significant occupational illness among the women, short job tenure, and a sustaining intra-occupational gender pay gap (Croucher, Økland, 2021).

Moreover, detailed conclusions can be made based on the literature review (Step 6). The literature review allowed the authors to identify the researchers (Chin, 2008; Szozda et al., 2014; MacNeil, Ghosh, 2017; Ku et al., 2017; Bhirugnath-Bhookhun, Kitada, 2017; Belev et al., 2020; FiDan et al., 2020; Pike et al., 2021; Lee et al., 2022; Vo et al., 2023) who proposed incentives to suppress this impediments. These findings address our first research question and are presented in the further sections of the article. Furthermore, one out of 15 articles selected for the literature review focused on the comparison between man and women in maritime industry rather than solely on the impediments faced by women. This article examined differences between the personality attributes between men and women as onboard crew (Cojocararu et al., 2018).

There is a lack of international studies comparing the position of women in the maritime industry across different countries. Most selected studies focus on the women's position in specific countries, such as United Kingdom (Pike et al., 2021) Turkey (FiDan et al., 2020), Bulgaria and Croatia (Belev et al., 2020) Norway (Croucher, Økland, 2021), Taiwan (Lee et al., 2022), or specific regions, such as Eastern and Southern Africa (Bhirugnath-Bhookhun, Kitada, 2017). There is also a lack of current studies that present the increased interest of women in choosing gender-atypical majors. Only 1 out of 15 articles examined this interest, focusing on young women studying maritime navigation in Poland (Szozda et al., 2014).

### 3. Women position in maritime industry in Poland – analysis

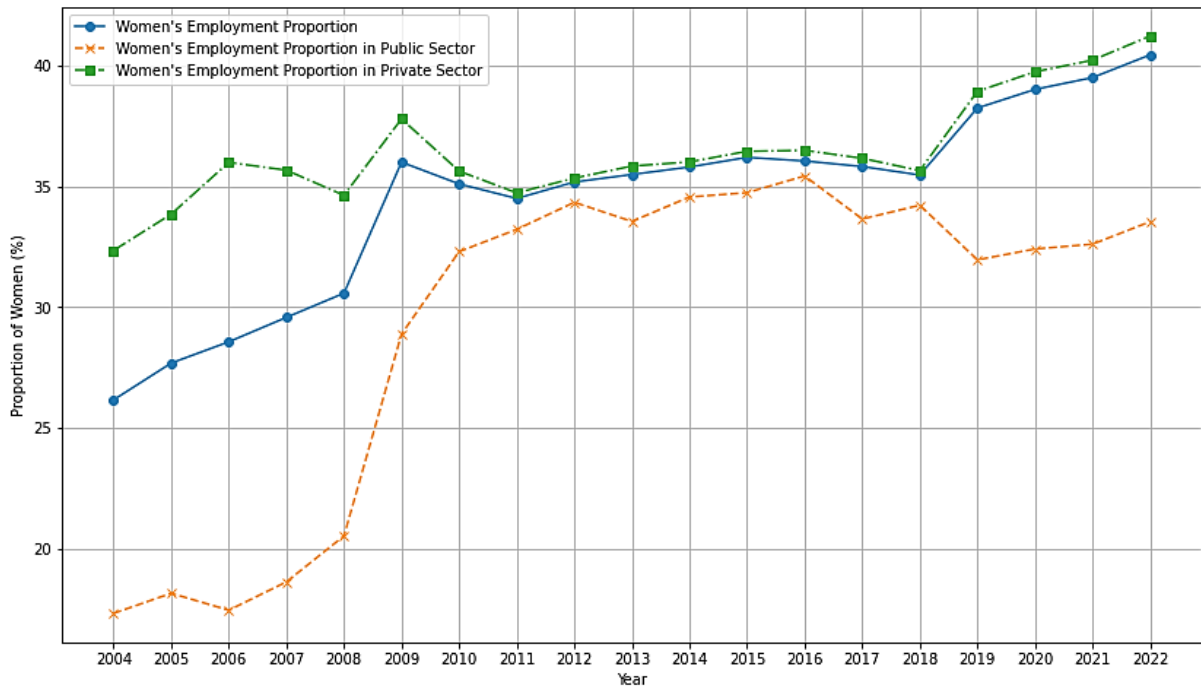
The authors of the article adopted classification by Statistics Poland, which defines the basic scope of maritime economy for statistical purposes according to Polish Classification of Activities (Rocznik Statystyczny Gospodarki Morskiej, 2023)<sup>1</sup>. Descriptive statistics were used to analyze the data obtained in this manner. The primary focus was to examine the percentage change in the ratio of employed women to the total workforce, the trends in new hires, and how these relate to the number of graduates from maritime programs. Additionally, we analyzed the differences between various types of activities within the maritime industry to identify disparities in women's participation across different sectors.



**Figure 2.** Employment Trends in Maritime Industry in Poland (2004-2022).

Source: Rocznik Statystyczny Gospodarki Morskiej 2004-2022, Główny Urząd Statystyczny, stat.gov.pl, 5.06.2024.

Women's employment trends closely follow the total employment trends but at a lower scale (Figure 2). This explains a consistent increase in the number of women employed over the years, with significant growth from 2017 onwards. The private sector shows higher fluctuations in employment, with peaks similar to the overall employment trends. Women's employment in the public sector is particularly unstable, with more pronounced growth rate changes compared to the overall public sector employment. Private sector employment growth rates are more stable compared to the public sector, with fewer extreme fluctuations.



**Figure 3.** Proportion of Women's Employment in Privat and Public Sector of Maritime Industry (2004-2022).

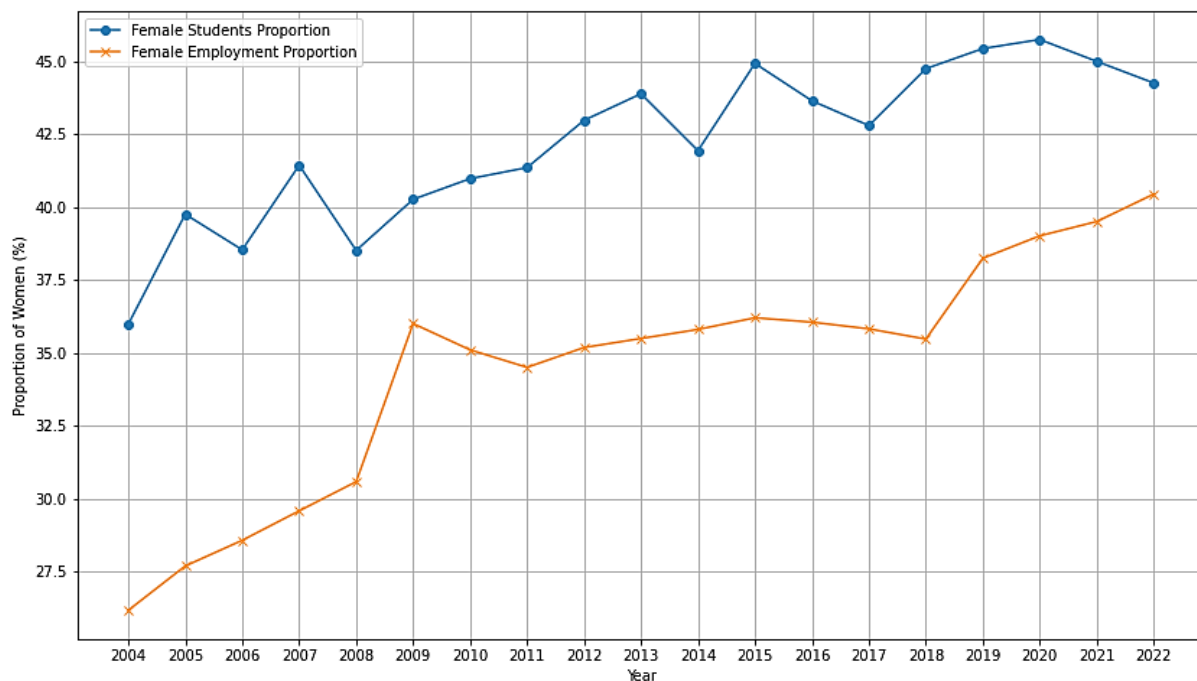
Source: Rocznik Statystyczny Gospodarki Morskiej 2004-2022, Główny Urząd Statystyczny, stat.gov.pl, 5.06.2024.

The proportion of women's employment has generally increased over the years, both in total employment and within the public and private sectors. The private sector consistently shows a higher proportion of women compared to the public sector. The public sector, while having a lower proportion of women, shows a steady but slower increase compared to the private sector.

In addition to examining the trends in overall female employment, this study also compared the hiring of new employees and the proportion of women among all newly hired workers. The general trend in female employment in the maritime industry, irrespective of sector, was also analyzed. The percentage of women hired in the private sector has varied. From 2004 to 2007, the percentage remained around 35%. A significant increase occurred in 2008, with the percentage rising to around 40% by 2012. This high level fluctuated but generally remained between 35% and 40% up to 2022. The public sector saw a notable increase in the percentage of women hires starting in 2008. From 2004 to 2007, the percentage of women hires was relatively low, fluctuating around 5-7%. From 2008 onwards, there was a significant upward trend, reaching around 20% by 2011. Between 2011 and 2022, the percentage of women hired in the public sector generally ranged between 25% and 35%. The percentage has stabilized around 30% in the most recent years.

The proportion of female students in maritime studies has been generally increasing over the years from 35.98% in 2004/05 to 44.25% in 2022/23 (Figure 4).



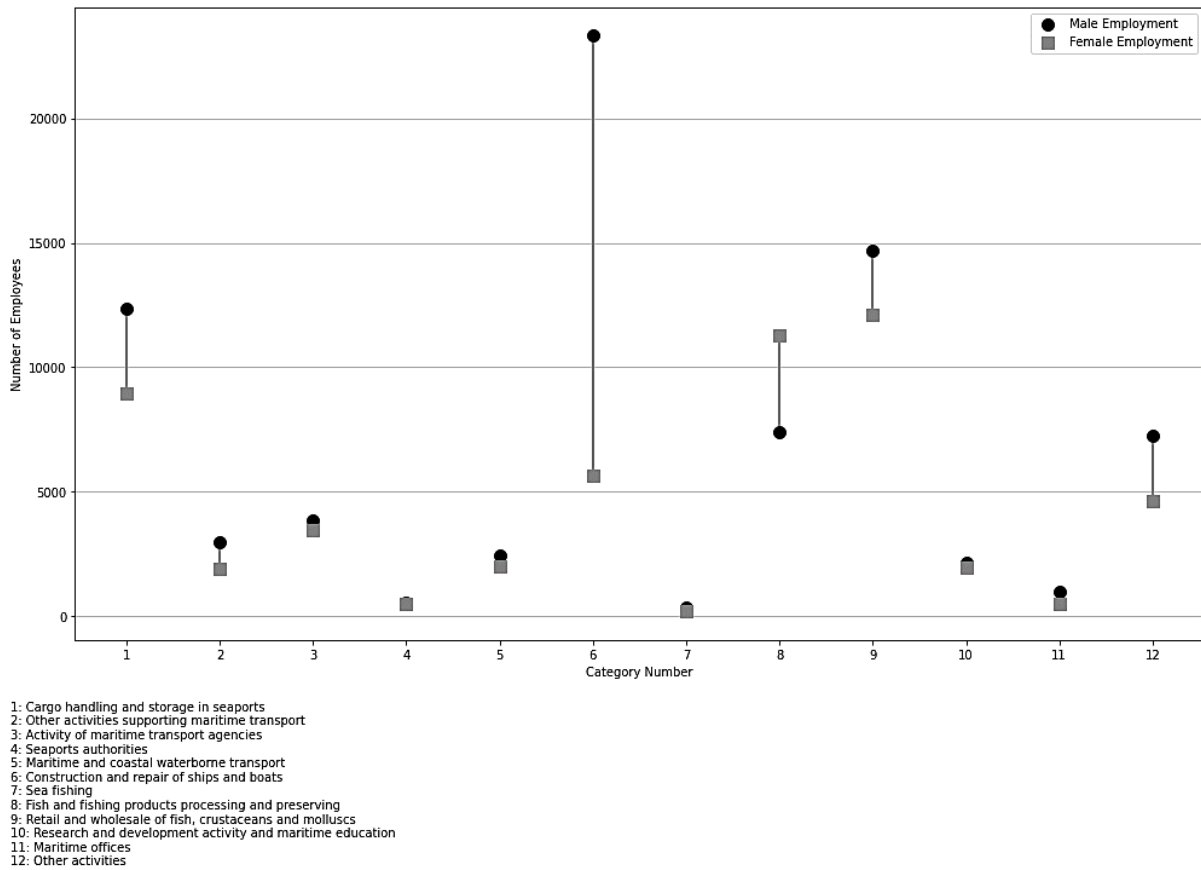


**Figure 4.** Proportion of Female Students vs. Female Employment in Maritime Industry (2004-2022).

Source: Rocznik Statystyczny Gospodarki Morskiej 2004-2022, Główny Urząd Statystyczny, stat.gov.pl, 5.06.2024.

There were notable increases around 2010/11 and 2015/16, peaking at 45.74% in 2020/21. The growth rate of female students in maritime studies is generally higher than the growth rate of female employment in the maritime industry. There is a slight lag in the employment data following the trends in student data, which is expected as students transition from academia to the workforce. The stable percentage of female maritime students suggests a consistent supply of qualified women entering the job market.

Previous research revealed that female representation varies significantly across different maritime-related activities (Nastali, Bartlett, 2022). Data analysis of Polish maritime industry confirmed this phenomenon. The proportion of female employment across various maritime-related activities for the year 2022 differ significantly (Figure 5).



**Figure 5.** Comparison of Male and Female Employment by Category in 2022.

Source: Rocznik Statystyczny Gospodarki Morskiej 2004-2022, Główny Urząd Statystyczny, stat.gov.pl, 5.06.2024.

Categories such as fish processing, research and development, and maritime agencies show higher female participation, while traditional sectors like construction and repair stay behind.

The data reveal a positive trend in the participation of women in the maritime industry, both in education and employment. Since 2017, there has been a significant increase in the number of women employed in the sector, particularly in the private sector, which consistently shows a higher proportion of female employees compared to the public sector. Despite the growth, the private sector experiences more stable employment trends, while the public sector shows greater instability.

The increasing proportion of female students in maritime studies suggests a promising future for gender diversity in the industry. The lag between the peaks in female student enrollment and corresponding increases in employment highlights the transition period from education to the workforce.

#### 4. Recommendations from other countries that can be applied in Poland

Based on research conducted in male-dominated industries and studies within the maritime industry, we can conclude that improving gender balance and increasing women's participation requires actions at three levels: organizational, institutional, and within technical universities educating future maritime industry workers.

First, maritime industry can use benchmark to improve gender equality. The systematic literature review conducted in the section "Literature research design" allowed the authors of the article to present recommendations postulated by researchers to overcome the barriers that affect women in some areas of maritime sector in Poland. These recommendations are as follows:

- Ensure consistent and ongoing education, training, and sensitization workshops in maritime sector businesses. Balance technical with non-technical training, especially leadership and soft skills, to ensure that seafarers are better equipped to function in a fast-changing industry. Training at all levels, from cadets to senior officers, and developing further mentoring opportunities within maritime institutions and across organizations are key (Pike et al., 2021; Belev et al., 2020; Ku et al., 2017; MacNeil, Ghosh, 2017; Szozda et al., 2014).
- Add the topic of gender equity to maritime educational institutions' curriculums, using a systematic and gender-sensitive approach to increase awareness and promote equality among the next generation of maritime professionals (MacNeil, Ghosh, 2017).
- Support women seafarers at every stage of their careers and enable more of them to complete their career cycles. Successful careers bring women into leadership roles where they can promote gender equality, making women's voices heard, and add women's perspectives in decision-making (Tang, 2023).
- Establish partnership between individual institutions and industry associations/organizations to provide long-term career coaching, networking, and fellowship opportunities to increase the retention of women in the industry (MacNeil, Ghosh, 2017).
- Raise awareness among sector dignitaries to eliminate prejudice against women (FiDan et al., 2020).
- Improve onboard experiences by enhancing the occupational health, safety, and wellbeing of all seafarers, regardless of gender, by improving the experiences of women on board (Pike et al., 2021).
- Advocate for labor rights in concern with gender and racial/ethnic equality (Chin, 2008), enforce the right for women to have access to medical and sanitary items on board all seagoing vessels (MacNeil, Ghosh, 2017).

- Create policies that support a work-family balance and retain talented women in the industry (Vo et al., 2023). Policymakers should consider creating a more conducive working environment for women to support them in achieving a better work-life balance, thus reducing societal cost (Bhirugnath-Bhookhun, Kitada, 2017).
- Develop zero-tolerance policies for sexual harassment and discrimination that are blanket across the industry and are mandatory for staff inductions (MacNeil, Ghosh, 2017).
- Launch marketing campaigns to recruit more young women into potentially rewarding careers and to reduce the possibility of future skills shortages (MacNeil, Ghosh, 2017).
- Set industry targets for increasing female membership in transport unions to give women a fair and equal voice and facilitate the prioritization of issues relevant to them (MacNeil, Ghosh, 2017).
- Create short- and long-term goals and methods to continually monitor and measure the progress of integrating women into the maritime sector. This provides insight into the health of the industry and encourages further development of strategies as required (MacNeil, Ghosh, 2017).
- Conduct further research to explore range of masculinities on board across ethnicities to achieve a more nuanced understanding of gender relations on board (Acejo, Abila, 2016). Additionally, identify up-to-date statistical information on women in the maritime industry, focusing on areas such as role imbalances, pay imbalances, employment trends, and other relevant facts (MacNeil, Ghosh, 2017).

Surveys of maritime stakeholders reveal that revising gender requirements, implementing comprehensive gender policies in shipping companies, and tackling negative attitudes toward women are crucial steps toward eliminating gender inequality in the maritime industry (Dragomir, 2018; Şenbursa, Ozdemir, 2020; Tang, 2023). Implementing research-informed toolkits for gender equality training can drive positive actions and foster institutional change. For instance, Chance, Mihajlović Trbovc (2021) highlight that universal initiatives, such as unconscious bias training that includes both men and women, tend to receive strong support and have minimal unintended consequences. Cundiff et al. (2018) suggest that framing diversity initiatives as inclusive for all genders, rather than exclusively targeting women, can promote a sense of identity safety for both women and men, enhancing the overall effectiveness of these initiatives. Conversely, Smith et al. (2023) note that initiatives exclusively targeting women, like female leadership programs, often receive mixed reactions and may inadvertently reinforce gender divides.

Achieving gender balance requires a multifaceted approach, with committed leadership playing a key role. According to (Grimson J., Grimson W., 2019), significant interventions include promoting work-life balance and addressing unconscious bias within organizations. Empowering women to tackle challenges such as the glass ceiling, pay disparities,

and caregiving responsibilities is crucial. This can be effectively achieved by providing networking and mentoring opportunities and promoting authentic leadership (Ozdemir, Albayrak, 2018). Additionally, fostering an organizational climate that supports diversity is essential for improving gender balance in leadership roles, ensuring that women have the necessary support and opportunities to advance their careers (Kulich, Bosak, 2019).

International organizations also play important roles in improvement gender equality. The International Maritime Organization (IMO) and the International Labour Organization (ILO) advance gender equality in maritime shipping through robust legal frameworks and policies (Kormych, 2020; Jeevan et al., 2020; Shemiakin et al., 2024). The example of such initiatives is "Making Waves: Women leaders in the maritime world" (Balasanyan, Phutkaradze, 2018). Reflecting this commitment, the United Nations highlighted "Empowering Women in the Maritime Community" as the theme for World Maritime Day, underscoring the importance of creating equal opportunities for all gender groups (Lee et al., 2022) The United Nations 2030 Agenda for Sustainable Development emphasizes achieving gender equality and empowering all women and girls, highlighting the importance of challenging gender stereotypes (Mella, 2022).

Additionally, regulation at national level significantly define women's role in society (Cabeza-García et al., 2019; Rubenstein, Young, 2016). For instance, positive laws imposing gender quotas in the boardroom have been shown to trigger gender diversity (Cabeza-García et al., 2019) It's worth noting here that anti-discrimination laws by themselves have proven ineffective at countering discrimination against women. The effectiveness could be improved by combining them with tools of information such as guidance materials (Smith, 2014).

Educational institutions, particularly technical universities, are crucial in promoting gender equality. For instance, García-Holgado & Gonzalez-González (2021) emphasize the importance of instilling gender equality values in engineering students, fostering an inclusive culture from the ground up.

Successfully integrating women in Maritime Education and Training (MET) demands a balanced approach that blends top-down directives with bottom-up engagement. Researchers emphasize the importance of involving practitioners in transforming their attitudes and practices, thereby enhancing the effectiveness of implementation (Barahona-Fuentes et al., 2022). Additionally, Maleki & Stephens (2017) note that role models serve as significant motivational factors for female students pursuing careers in maritime engineering, inspiring the next generation of women engineers.

These findings address the last research question, but it should be noted that a deeper insight in this subject is required within further research, especially cautious consideration which initiatives implemented on the governmental and organizational level will achieve social recognition in male-dominated industry such as maritime industry in Poland.

## 5. Discussion

The changes over the years in the proportion of women in maritime employment in Poland reflect global trends. These proportions are increasing worldwide. However, the actual situation seems to be even better than the average participation of women employees in the maritime industry according to the International Maritime Organization (IMO) and the Women's International Shipping & Trading Association (WISTA). They estimate women currently account for only 29% of the overall workforce in the general maritime industry and 20% of the workforce of national maritime authorities in member states (Nastali, Bartlett, 2022). These figures indicate that while Poland is progressing, there is still room for improvement. It is especially important to note that the participation of women is not uniform across sectors or all types of activities within the maritime industry. Furthermore, in the maritime sector, women are especially underrepresented in leadership roles (Barreiro-Gen et al., 2021; Ortega et al., 2015). This lower representation of women in certain positions or areas highlighting the need for targeted interventions.

The barriers for better women's representation include deeply ingrained gender biases, lack of supportive policies such as flexible work arrangements, and limited access to career development opportunities like mentorship and leadership training. Research suggests that these issues are particularly pronounced in sectors traditionally dominated by men, such as shipbuilding and repair, where cultural resistance to gender diversity is often stronger (MacNeil, Ghosh, 2017). Moreover, the role of policy and legislation should not be underestimated in addressing gender disparities. Countries that have implemented gender quotas in leadership positions or introduced family-friendly policies, such as extended parental leave or flexible work schedules, have seen marked improvements in gender balance across sectors (Cabeza-García et al., 2019). In Poland, adopting similar policies tailored to the maritime sector could provide the structural support needed to encourage more women to enter and remain in the industry. At the international level, organizations like the International Maritime Organization (IMO) continue to push for gender equality through global frameworks that advocate for fair treatment and non-discriminatory practices (Jeevan et al., 2020). The role of education and training is also critical in shaping the future of gender diversity in the maritime industry. Data shows that the proportion of female students in maritime studies has been steadily increasing, which bodes well for future employment trends (Figure 4). However, simply increasing enrollment is not enough. Institutions must ensure that their curricula are inclusive and designed to prepare women for both operational and leadership roles in the industry. This includes providing technical training, as well as fostering leadership skills and offering mentorship programs that support women as they transition from education to the workforce (García-Holgado, Gonzalez-González, 2021).

By leveraging knowledge and best practices from other countries, Poland can better address observed disparities and further enhance gender diversity in its maritime sector.

## 6. Conclusion

The conducted research enabled the authors to find answers to the research questions. Firstly, it allowed to identify impediments that women face in maritime industry and classify them into specific groups: impediments at educational and career development level, psychological and emotional impediments, sociological impediments, and economic impediments. Secondly, the study revealed an increasing trend in the participation of women in Poland's maritime industry, both in education and employment. Finally, the paper provided insights into the challenges of achieving gender equality in the maritime industry in Poland.

The study contributes to the broader literature on achieving gender equality and diversity in workplaces by compiling practical initiatives undertaken in male-dominated industries, particularly in the maritime industry. The issue of gender inequality in male-dominated industries is significant and frequently discussed in the literature. However, the study addresses a relatively unexplored sector of the maritime industry, particularly in Poland, where there is a significant lack of research on the position of women in this industry. The research has practical implications as it identifies critical areas where intervention is needed and suggests directions and methods for such interventions. Authors are aware of the research limitations. The current analysis is restricted to female employment in the maritime industry within a single country. Due to the lack of studies that present the percentage of women employed in the maritime industry across different regions or continents, a comparative study of women's position in the male-dominated industries, such as those in European Union countries, would be of significant value. This approach could expand the context of gender inequality, especially regarding its roots, gender stereotypes, and the changes in corporate culture. Furthermore, it would allow for more comprehensive understanding of multinational activities that could improve the position of women in male-dominated industries.

For future research, the authors intend to focus on the position of women in male-dominated industries, particularly within the European Union. The research aims to investigate women's reasons for choosing to study on male-dominated faculties and to evaluate the future career opportunities in maritime industry in comparison to activities undertaken to address the gender impediments in business practices. The authors plan to conduct comprehensive studies that will focus on various stages of women's careers in the maritime industry across European countries. This includes examining biases at the educational level, challenges faced by women entering the industry, and difficulties encountered in achieving leadership positions.

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### Footnotes

1. Polish classification of activities are specified in brackets: A section: Agriculture, forestry and fishing (sea fishing); C section: Manufacturing (building of ships and floating structures; building of pleasure and sport boats, repair and maintenance of ships and boats, processing and preserving fish, crustaceans and molluscs), G section: Wholesale and retail trade; repair of motor vehicles including motorcycles (wholesale of other foods including fish, crustaceans and molluscs; retail sale of fish, crustaceans and molluscs in specialized stores), H section: Transport and storage (sea and coastal passenger and freight water transport, cargo handling, storage of goods in seaports, services supporting maritime transport, activity of maritime transport agencies), I section: Accommodation and food service activities (tourism and coastal area), L section: Real estate, renting and business activities (seaports' authorities), M section: Professional, scientific and technical activities (research and development for maritime economy purposes), N section: Administrative and supportive activities (waterborne transport equipment renting), O section: Public administration and national defense; compulsory social security (regulation of and contribution to more efficient operation of businesses), P section: Education (maritime).