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Women founders of startups: an examination through the prism of the queen bee phenomenon

Rebeca da Rocha Grangeiro[1]
Manoel Bastos Gomes Neto[2]

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Abstract

Purpose – To analyze the adherence to queen bee phenomenon (QBP) attitudes among women founders and co-founders of startups.

Theoretical framework – We used the three dimensions of the QBP to understand how female founders of startups relate to other women in the work environment and how they deal with the male professional culture in which they are embedded. We also used the gender career literature to understand cooperative relationships between women.

Design/methodology/approach – Our research approach is characterized as qualitative. We employed semi-structured interviews with 30 women founders of startups. We used the abductive analytical procedure. The authors carried out the coding process independently and we obtained adequate reliability values in the coding procedures.

Findings – The participants stated that they assimilated male traits. However, they did not distance themselves from their gender identity group. Nor did they legitimize the gender hierarchy. Thus, we rejected our assumption that women founders of startups exhibit strong QBP adherence.

Practical & social implications of research – This study contributes to the theoretical advancement of the QBP by analyzing a male context where QB attitudes are not salient. At the same time, we suggest gender bias awareness as a variable that impacts QB attitudes. Although cooperation among women reduces QB attitudes, it does not reduce gender inequality in the workplace. Thus, in terms of social implications, we reinforce the need for structural changes to achieve gender equality.

Originality/value – The relationship between women has been scarcely studied in the startup context, and we found no studies that analyzed female founders of startups through the prism of the QBP.

Keywords: Queen bee phenomenon, startups, female founders, relationship between women.

1. Universidade Federal do Cariri, Centro de Ciências Sociais Aplicadas, Juazeiro do Norte, CE, Brasil

2. Pontifícia Universidade Católica de Minas Gerais, Programa de Pós-graduação em Administração, Belo Horizonte, MG, Brasil

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1 Introduction

The organizational structure of startups is different from traditional organizations. Startups have flatter hierarchies, less bureaucracy, more flexible structures, a team mentality, and cross-functional collaboration (Lopes Fo. et al., 2019). These characteristics bring professionals together and foster the promise of equality in terms of career opportunities (Mickey, 2019; Spender et al., 2017). However, due to their strong technological base, high degree of replicability, scalability, and competitiveness (Lopes Fo. et al., 2019; Kuester et al., 2018), women are not immune to discrimination in startups. Systemic and institutional gender biases reinforce male stereotypes that are entrenched in the technology field (Sperber & Linder, 2023; Ughetto et al., 2020).

Official data presented by the Startup Heatmap Europe shows that in Europe, 15.5% of founders or co-founders of startups are women. They also receive 38% less funding than their male counterparts when starting up under the same conditions (Startup Heatmap Europe, 2020). In the United States, in 2018, for every dollar raised by a startup with a female founder, exclusively male startups raised $8.33 (West & Sundaramurthy, 2019). In Brazil, a country strongly characterized by a patriarchal, sexist, and macho culture (Carrieri et al., 2013), 29.5% of startups have women as partners and only 4.4% were founded exclusively by women (Female Founders Report, 2021). This echoes recent data published by Serviço Brasileiro de Apoio às Micro e Pequenas Empresas (2023), which indicates that even though Brazil has 10.3 million women business owners, the largest contingent of female entrepreneurs in its history, women's participation in the information technology (IT) services sector remains minimal. These data highlight that in countries where progress has been made in terms of gender equality (e.g. Europe and the United States), startups are more likely to be male organizations, and even more so in countries with gender inequality (e.g. Brazil).

In addition to being characterized as a male professional context because of their close ties to the technological field, startups are innovative businesses that depend on the entrepreneurial potential of their founders to develop. Previous empirical studies point to entrepreneurship as a male context, characterized by gender discrimination (e.g. Welsh et al., 2023). Thus, women founders of startups face double gender barriers (Sperber & Linder, 2023) as they struggle simultaneously with two male professional contexts: technology and entrepreneurship.

According to Derks et al. (2016) and Faniko et al. (2021), traditionally male organizational contexts are conducive to the emergence of the queen bee phenomenon (QBP). The QBP suggests that some women leaders who experience gender discrimination in traditionally male environments may engage in behaviors that are more harmful than helpful to other women (Derks et al., 2016). Thus, considering the influence of the male professional context on the prominence of queen bee (QB) attitudes among women leaders, we propose as the objective of this study to analyze the adherence of women founders and co-founders of startups to QBP attitudes. Confronting the QBP premise that the male work context is more susceptible to the emergence of QB attitudes with the fact that women founders of startups face double gender barriers (see Sperber & Linder, 2023), we make the assumption that women founders and co-founders of startups exhibit strong QBP adherence.

To fulfill the proposed objective, we conducted a qualitative methodological study. The female startup founders interviewed worked and lived in the Brazilian Northeast, a region where patriarchalism is even more accentuated (Nicholus, 2019). We believe that applying a qualitative methodological approach, which is rarely used for studies on the QBP, and highlighting a sociocultural group with pronounced gender inequalities could help develop theoretical aspects of the QBP.

In general, gender issues are still rarely studied in Brazilian startups (e.g. Gomes No. et al., 2020). The international gender studies in startups highlight the investment barriers faced by women (e.g. Balachandra et al., 2019). However, no study on the QBP in startups was found in the Brazilian or international literature. Research adopting the QBP has been conducted specifically in universities (e.g. Faniko et al., 2021), police forces (e.g. Derks et al., 2011), and the health sector (e.g. Sengul et al., 2019). Thus, this study is justified in advancing the debate on women's performance in the technological field. It is necessary to go beyond the examination of barriers related to access to capital and explore sociocultural factors of the environment in which women are embedded, as well as explore the cognitive processes underlying the relationships established between women in this environment (Wheadon & Duval-Couetil, 2019).

This study sheds light on the influence of social and organizational factors on cooperative and competitive relationships among women in a Brazilian region historically characterized by patriarchalism (Carrieri et al., 2013; Nicholus, 2019). At the same time, startups are organizations that attract young founders, directors, and employees.

They belong to a generation that has been more exposed to gender movements (e.g. #metoo) and are therefore more sensitive to gender diversity. Therefore, it is important to investigate how the antagonistic forces of patriarchalism and gender diversity movements interact and impact the relationships among women. Finally, our study can inform the actions of governments and development agencies that seek to contribute to the advancement of women's careers in startups.

Besides this introduction, this paper is divided into five other sections. The theoretical framework is presented in two sections. In the first one we present the QBP, the psychological processes behind the perpetuation of gender discrimination by senior women, empirical results of previous studies, and some criticisms of the term. In the second one, we present a brief overview of women and work in Brazil, adding some information about Brazilian startups founded by women. Our methodological decisions are presented and justified in the method section. We then describe and discuss our results in two different sections. In the conclusion section, we address the main limitations of our study, its theoretical and practical implications, as well as a future research agenda.

2 Psychological processes that explain the queen bee phenomenon

Women who perceive a threat to their gender identity in the workplace face the dilemma of whether to adopt individual or collective strategies in the face of the threat. For example, if women perceive themselves as disadvantaged due to their gender, they can either work collectively for women's development or focus on developing their personal opportunities. Actions at the collective level emphasize the needs of the group as a whole. Individual-level actions, on the other hand, emphasize personal outcomes by distancing oneself from the disadvantaged group and adopting traits typical of the advantaged group (Derks et al., 2016). Strategies at the collective level can have two different ramifications. The first involves stereotypically female qualities that are positive. The second concerns actions aimed at social change, such that women collectively protest against career decisions that illegitimately harm the female collective (Derks et al., 2016). Solidarity, cooperation, and collective behavior presuppose that women support each other on the basis of their gender identity, especially at higher levels where they act as role models and mentors (see Mavin, 2006).

Previous empirical findings point to networking and mentoring processes as mechanisms for women to advance the careers of other female professionals (e.g. McAdam et al., 2019). Some leaders are seen as symbols that increase opportunities, help to chart a possible path to professional success, and serve as role models and inspiration for their female colleagues (O'Neil et al., 2011). The more participative and collaborative leadership style provides greater emotional, social, and professional support for other women (O'Neil et al., 2008).

Hurst et al. (2017) point out that women in positions at the bottom of the organizational hierarchy have higher expectations for emotional understanding and support from their managers. At the same time, they expect their managers to have a more holistic view and better understand their complexities. Thus, for some women, supportive behavior and building mutual alliances among women emerges as a strategy to reduce gender inequality in the workplace and create new opportunities for professional advancement (Abalkhail, 2020).

The presence of women in leadership positions, as well as their participation in women's collectives, has positive outcomes in reducing gender discrimination and improving the career prospects of other women. Building collaborative networks, whether formal or informal, promotes opportunities for women's professional development and allows them to challenge the status quo (McAdam et al., 2019), reducing stereotypes that position men as natural and more successful entrepreneurs than women.

On the other hand, it is worth noting that these collaborative experiences are situated in and influenced by personal, organizational, and social contexts (Hurst et al., 2017). Thus, O'Neil et al. (2011) reinforce that in a system and culture that does not support gender diversity, strong collaborative networks among women are not sufficient to address gender inequality. Even when pursuing legitimate causes, women who adopt collective strategies to overcome inequalities are often associated with the image of troublemakers. This negative image can discourage other women from adopting collective strategies (Ellemers & Barreto, 2015).

The individual strategy emerges as a more discrete mechanism, in which the woman seeks to be accepted by the favored group by distancing herself from the disadvantaged group. Thus, some women in leadership positions may behave according to the norms of the dominant group because they expect some personal gain from this behavior (Ellemers & Barreto, 2015).

This type of strategy, in which women deal with gender discrimination by adapting to the system, promotes the emergence of attitudes characteristic of the QBP.

The pioneering work on queen bee focused on competitive behaviors among women (Staines et al., 1974). Thus, the diffusion of this metaphor damaged the image of female leaders and blamed them for the low representation of women in high hierarchical positions (Mavin, 2006). More recent studies on the QBP clarify the psychological process behind women's competitive behavior. Some of the psychological processes are also found in other disadvantaged groups, such as self-group distancing in some disadvantaged ethnic groups (Derks et al., 2016). Therefore, unlike the pioneering studies, the recent ones attempt to erase the image of hereditary rivalry among women and account for queen bee attitudes toward male organizations and gender discrimination faced throughout their careers (Grangeiro et al., 2023a). Therefore, QBP attitudes have been organized into three dimensions in the scientific literature, as we present below.

The first dimension is called male identification. It refers to stereotypically masculine characteristics that provide higher status in organizations (Wood & Eagly, 2012). Women in leadership positions exhibit more agency traits (e.g. analytical, assertive, competitive, ambitious, dominant, and self-reliant) and resemble men in the way they dress, speak, and relate to subordinates (Faniko et al., 2021). Women report being more committed and ambitious than their early career peers (Faniko et al., 2016; Grangeiro et al., 2023a). They adhere to masculine stereotypical behaviors because characteristics associated with male leadership styles confer more status and power in organizations (Derks et al., 2011). In the technological field, women reinforce the importance of becoming invisible, becoming "one of the guys", and avoiding drawing attention to their feminine characteristics (Harvey & Tremblay, 2020).

The second dimension refers to self-group distancing. This dimension suggests that women in prestigious positions report having low identification with different subgroups of women. They also report making more sacrifices (Ellemers, 2014) for the sake of their careers, resulting in low identification with female co-workers in lower positions in the organizational hierarchy who have not achieved professional success. Women in higher positions may feel compelled to distance themselves from female colleagues in order to escape the negative expectations and low status associated with their gender (Ellemers, 2014). Faniko et al. (2016) emphasize that this phenomenon does not refer to a generalized physical and psychological distancing directed at all women, as queen bee women approach and support colleagues who are at the same hierarchical level and have similar trajectories.

Finally, the third dimension is called gender hierarchy legitimation. It highlights that QB women reinforce the status quo i) by denying gender discrimination (Derks et al., 2011). Previous research suggests that academic and police women do not realize that some of the barriers they face are gender barriers (Gomes No. et al., 2022; Derks et al., 2011); ii) by defending the meritocratic system even in the face of clear evidence of inequality (Webber & Giuffre, 2019); and iii) by being hostile toward affirmative policies that seek to promote gender equality in positions of high responsibility, such as women who oppose gender quotas, since such policies somehow neglect the efforts they have made to advance in their careers (Faniko et al., 2017; Derks et al., 2011).

The image conveyed by the queen bee metaphor suggests the presence of hereditary female competitive behaviors because it uses an image from the biological sciences. Mavin (2006) adds that the term is sexist and tarnishes the image of women who have reached high hierarchical organizational levels. Mavin (2006) warns that the use of the term may perpetuate a caricatured image of women leaders as ambitious and as more masculine than men. Nevertheless, the scientific research on the QBP from the last decade does not point to women themselves as being responsible for the emergence of the phenomenon, but highlights the role of the male organizational context as critical to the emergence of the phenomenon (Faniko, Ellemers, Derks, & Lorenzi-Cioldi, 2017). Similarly, it is believed that women who adhere to these attitudes do so because of the numerous difficulties they have experienced throughout their careers (Faniko et al., 2017). Despite researchers' efforts to portray QB as a consequence of gender discrimination faced by women in male organizations, criticism of the phenomenon persists, leading the most influential researcher on the topic to propose replacing the QBP with self-group distancing (Faniko et al., 2021).

3 A brief overview of Brazilian women in the workplace

Brazil is a country that has historically been characterized by the sexual division of labor (Nicholus, 2019).

The shared belief that women were biologically more adapted to housework and caregiving isolated them in the private domain. According to this mindset, men are more competitive, ambitious, and self-reliant due to their biological traits and are therefore considered more capable of pursuing privileged professions of higher social status (Hirata & Kergoat, 2007). Thus, gender inequalities remain due to the persistence of gender roles deeply rooted in the culture of a macho Brazilian society (Coelho Jr. et al., 2022).

Since the 1970s, there has been a greater increase of women in the labor market (Araújo, 2021). Entering into paid work is the first step towards achieving gender equality (Cole, 2020). In the 1980s, we can observe the achievement of legal equality through the 1988 Federal Constitution (Lopes, 2006). Data from 2021 allow us to confirm the presence of gender parity in the labor market in general, since 42.5% of those in the Brazilian formal labor market are women (Instituto Brasileiro de Geografia e Estatística, 2022). However, traces of the sexual division of labor persist, and we can cite three pieces of evidence for this persistence. First, even highly qualified women who hold high managerial positions (Carvalho No. et al., 2010) and who are prominent in their university careers (Censon et al., 2022) report having more responsibility for domestic and caregiving activities than their partners. Second, the gender pay gap persists, with women being paid approximately 30% less than men (Instituto Brasileiro de Geografia e Estatística, 2022). The third indication relates to horizontal and vertical segregation. Horizontal segregation refers to the confinement of women to so-called female professions and the difficulty of entering and remaining in historically male professions, such as science, technology, engineering, and mathematics (STEM). Vertical segregation refers to the low representation of women in the highest hierarchical positions in organizations (Gomes No. et al., 2020).

The development of women in the labor market has been accompanied by an increase in the number of enterprises founded by women in Brazil (Santos et al., 2022). Nevertheless, as in the labor market, Brazilian entrepreneurship in general is characterized by sexual division. Female businesses are more often based on gender stereotypes, i.e. related to care, beauty, fashion, or food. Also, female enterprises are smaller than male ones and have less access to financing (Female Founders Report, 2021; Serviço Brasileiro de Apoio às Micro e Pequenas Empresas, 2023).

Even if we can list some advantages for women's careers in startups, such as organizations that are more open to diversity, offer greater opportunities to balance personal and private life, and promote actions to support women and women's collectives (Gomes No. et al., 2020), gender inequalities persist. The Female Founders Report (2021) indicates that 4.7% of Brazilian startups were founded exclusively by women. The same report shows other data that prove the gender disadvantage in startups: in addition to less relevant funding for women's ventures, more than 70% of female founders said they had experienced moral harassment. There was little diversity among the women running startups: 76.5% identified as white and 87.5% as heterosexual (Female Founders Report, 2021). Still, in a study on the profile of the founders of the first Brazilian startups to become unicorns, Sousa (2021) identified 18 startups and 44 founders, only one of whom is a woman.

Pavan et al. (2021) show some reasons for the low number of startups founded by women. The social and historical context in which women are embedded is one of the reasons, since in cultures where women are seen as homemakers and childcarers, clients, stakeholders, and investors tend not to associate their image with entrepreneurship, and women themselves have difficulty feeling legitimate as entrepreneurs. Second, women have lower expectations for the high growth of their ventures (Ruiz Arroyo et al., 2016). Even though women's ventures are as risky as men's ventures, female businesses are less likely to succeed. The gender of the founder impacts the survival of the venture (Bertolami et al., 2018), so women have to improve compensatory mechanisms to increase the chances of success of their business. Women need greater investment in human and social capital and management practices for their ventures to have the same chances of survival as male ventures (Bertolami et al., 2018).

4 Method

To achieve the proposed objective, we adopted a qualitative research approach. As a data collection strategy, we used semi-structured interviews, carried out between February 2020 and February 2021. We interviewed 30 women founders of startups in the Brazilian Northeast, specifically 11 from the city of Fortaleza (CE), 9 from Recife (PE), and 10 from Salvador (BA). These cities occupy the top three positions in the ranking of Northeastern cities in terms of number of startups (Associação Brasileira de Startups, 2021). Regarding the sample size, we considered two criteria.

The first was information redundancy, and the second was the balance between the number of participants from each city.

4.1 Data collection procedures

The research instrument was divided into five blocks of questions. First, personal and professional questions were asked, followed by specific questions about the startups they manage, women's overall participation in the startup ecosystem, factors that positively influence women's access and permanence, and finally, factors that hinder women's performance (see Supplementary Data 1 – interview script).

To access women working in startups, we first mapped Brazilian startups (Associação Brasileira de Startups, 2021) and searched their websites and social networks for information about their teams. In the next phase, the participants were contacted through social networks such as WhatsApp and Instagram. We also asked the women interviewed for contacts of other professionals involved in startups. In this way, participants were approached according to convenience and through snowball sampling, both non-probabilistic methods.

After conducting the first three interviews, the authors met to discuss the appropriateness of the interview script. We did not find the need for major changes, but we did notice that some questions made sense to some female founders but not to others, and that this depended on the stage of the startup (e.g. early stage, growth stage, or late stage). So we designed a large script and adapted the questions according to the startup characteristics. The first three pilot interviews were kept and the participants are part of this study.

We conducted the first interviews in person (5), but due to the COVID-19 pandemic, the remainder of the interviews had to be conducted remotely (25), using Google Meet. Before starting the interview recordings, the objective was presented and the participants were asked to sign the free and informed consent form, guaranteeing their voluntary interest in participating in the study, the ethical criteria, confidentiality, and anonymity of the information provided.

The interviews were conducted in Portuguese, the official language of the researchers and the participants. They averaged about 50 minutes of audio each and were transcribed without software assistance (see Supplementary Data 2 – transcription of the interviews). The participants' quotes presented in this study were translated by the authors and back-translated by a bilingual (English-Portuguese speaking) researcher not involved in this study. To ensure the participants' anonymity, information that could identify them was removed and their names were replaced by a code consisting of a letter (F for founder) followed by a number indicating the order in which the interviews were conducted (from 1 to 30).

4.2 Participants

The study participants are women between the ages of 21 and 56, with a high level of education, 54% have a college degree, and approximately 43% have a post-graduate degree. Their experience in the startup ecosystem varied, for the most part, from 1 to 5 years. We tried to diversify the startup market sector, as can be seen in Table 1.

4.3 Data analysis procedures

The coding process used is characterized as abductive, as it combines deductive and inductive methods (Halpin & Richard, 2021). First, we relied on pre-established theoretical categories in the literature on the QBP to analyze the interviewees' statements. Then, the dimensions that make up the QBP were considered to start the coding process. We had no software assistance in the coding process (see Supplementary Data 3 – codebook and codes). Thus, for the male identification dimension, we sought to identify language that addressed agency traits, strong commitment to the career, and life choices that favor the career. For the self-group distancing dimension, we looked for statements in which the participants declared that they did not identify and/or compete with other women. For the gender hierarchy legitimation dimension, we sought to identify adherence to the meritocratic discourse, hostility to policies that favor gender equality, and denial of discrimination, recognized as such when the participant claims not to have experienced discrimination but reports situations characterized as sexual and sexist violence (Jaspard, 2011).

After the first stage of coding the transcripts, we noticed low frequencies of codes referring to self-group distancing (N = 01) and gender hierarchy legitimation (N = 03). Due to the low frequencies of the second and third dimensions of the QB phenomenon, we chose to exclude these theoretical categories. Then, we performed additional free readings of the text corpus to identify segments that referred to the relationship between women and how they signified the discriminatory processes they experienced. Thus, through the inductive method, codes related to support for other women and identification among women resulted in the category of cooperation.

Also, codes related to the recognition of gender discrimination as such, non-adherence to the meritocratic discourse, and support for gender equality policies gave rise to the category of fighting the status quo (Figure 1).

Table 1
Characterization of participants

Code	Age	Marital status	Educational level	Startup market sector
F01	21	Single	Incomplete higher education	Personal care
F02	26	Single	Postgraduate studies	Education
F03	33	Single	Postgraduate studies	Customer experience solutions
F04	30	NI*	Postgraduate studies	Financial
F05	24	NI*	Complete higher education	Service (e-commerce supermarket)
F06	25	Single	Complete higher education	Mobility
F07	26	NI*	Complete higher education	Digital marketing
F08	33	NI*	Complete higher education	Service (virtual assistance)
F09	24	NI*	Complete higher education	Business accelerator
F10	38	Married	Complete higher education	Brokerage service (agriculture)
F11	26	NI*	Complete higher education	Consultancy
F12	26	Married	Complete higher education	Education
F13	31	Single	Postgraduate studies	Real estate market
F14	32	NI*	Postgraduate studies	People management
F15	37	Married	Complete higher education	Technology
F16	42	Married	Postgraduate studies	Legal sector
F17	40	Married	Postgraduate studies	Architecture and urbanism
F18	33	Married	Postgraduate studies	Safety (violence against women)
F19	28	Single	Complete higher education	Safety (violence against women)
F20	46	NI*	Postgraduate studies	Food and beverage (restaurant)
F21	23	Single	Complete higher education	Basic and sanitation
F22	56	Married	Complete higher education	Silver economy
F23	22	Single	Complete higher education	E-commerce
F24	22	NI*	Postgraduate studies	Basic and sanitation
F25	36	NI*	Complete higher education	Financial
F26	34	NI*	Complete higher education	Digital marketing
F27	NI*	NI*	Postgraduate studies	Investment
F28	36	NI*	Postgraduate studies	Financial
F29	55	Married	Complete higher education	Silver economy
F30	34	Married	Postgraduate studies	E-commerce

NI* = Not informed.

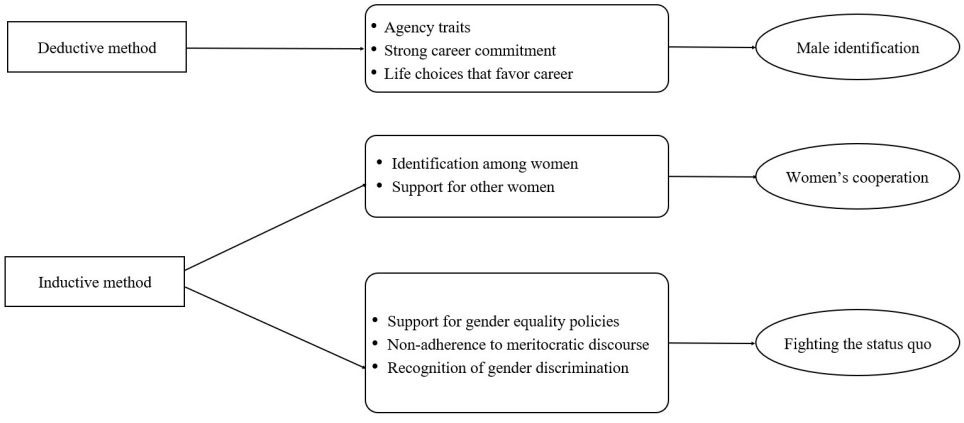

Figure 1. Interview analysis procedure

Once new second-order themes and categories were defined, the researchers performed another reading of the text corpus to count the frequency of the categories in each of the participants' statements. Each researcher carried out this procedure individually and independently. Thus, each interview was coded twice. In order to analyze the reliability of the categorization process carried out, we calculated the percentage of agreement between researchers and the kappa coefficient for each of the study categories (see Table 2). The percentages of agreement ranged from 90.0 to 100. All kappa coefficients were significant at $p < 0.001$ and ranged between 0.757 and 1. These values are adequate according to Vanbelle (2016).

After evaluating the levels of agreement among the researchers, we met to settle disagreements. At this point, for each category, we took the transcripts of the interviews where there was disagreement, and after reading and discussing the text corpus, we reached a consensus on the categories where there was disagreement.

5 Results

5.1 Male identification

In line with the underlying QBP behaviors noted in the literature, the statements of female founders of startups highlight the need to adopt masculine characteristics: 83.3% cite the adoption of agency traits, 80% cite the need for greater commitment, and 33.3% cite the need to make life choices that favor the career. These three second-order behaviors, their frequencies, and percentages are shown in Table 3.

5.1.1 *Agency traits*

Gender stereotypes suggest that male characteristics as more suited to technology and entrepreneurship, making male overrepresentation the norm and disfavoring female careers. The interviewees confirm this statement when they state that: "[...] *in education in general, women aren't encouraged to be leaders,* [...] *they aren't encouraged to use technology, let alone get into technology courses and graduate in a technology course*" (F23). F26 reinforces in her speech the high male representation and the absence of women in the startup ecosystem:

> [...] *I'm a mentor in many accelerator programs* [...]. *And it's very common to have a lot more male mentors, a lot more startups with male leadership* [...]. *If you don't pay attention, you can't create a startup that is led by a woman.*

Since it is a mostly male environment that values stereotypically masculine traits, the women interviewed affirm the need to adopt a firmer posture in order to occupy more space in technology, in leadership positions, and in strategic decision making: "[...] *at times it requires you to have a more dominant voice, a firmer grip, to know how to position yourself*" (F24).

Table 2
Inter-researcher agreement and kappa coefficient for second-order themes

	% agreement	Kappa	P
Agency	93.3	0.762	<.001
Commitment	96.6	0.87	<.001
Career choice	93.3	0.857	<.001
Cooperation	100	1	<.001
Competition	100	1	<.001
Perception of discrimination	93.3	0.762	<.001
Anti-meritocracy	96.6	0.783	<.001
Quota support	90	0.757	<.001

Table 3
Number of occurrences of the second-order themes of male identification

Category	Second-order themes	Occurrences	Frequency
Male identification	Agency	25	83.3%
	Commitment	24	80%
	Career choices	10	33.3%

F22 echoes this idea by stating, "*I have to fight this in my company. I have to kick down the door! All the time! Sometimes if I don't speak louder, I won't be heard*" (F22).

Thus, 83.3% of the participants (n=25) reported having agency traits. The statements of participants F05 and F06 exemplify such traits. F06 describes herself as an active, dynamic person and states the need to "[...] *be really incisive, really objective* [...]. *So, I think that women shouldn't be afraid, you know, to expose themselves, to be leaders, to be firm when they need to be*." F05 points out that she adopted a more masculine stance in the process of obtaining resources to found her startup, due to the fact that it was an exclusively male environment:

> *Do you know what my nickname was? Peireirão. They called me Peireirão. I took it as a joke, and even today I still do* [...] *But it has weight, right? Because there were only men. I was the only woman there, so I had to be a Peireirão*.

5.1.2 *Strong career commitment*

Because startups present a less hierarchical and more dynamic business model, a faster pace of work, and a culture of greater belonging, some interviewees cited the need for greater commitment as a general obligation:

> *In the startup environment, not everything is ready, not everything is thought out. So you need to make yourself very available to develop,* [...] *make suggestions for improvements, be a professional who has initiative and is aligned with the business purpose, you know?* (F15).

Even though a high level of commitment is required of all employees, 80% of the women (n=24) highlight the need to commit and sacrifice more than their male colleagues:

> *When there's a business in which a woman is growing and being valued, we have to applaud, because you can be sure that the effort she made was much greater than the effort of a man or a team of men*. (F09).

Interviewee F18 emphasizes that "[...] *some women need to dedicate themselves more, work harder, study more, and end up having this pressure to spend more time at the company, to show that they are performing, while some men don't have this concern*." Thus, "[...] *a woman has to work 2 or 3 times harder to... at least achieve the same result as a man*," confirms F12. F04 reinforces this by stating that "*I think women work more hours, I think women care more, they are much more dedicated. Women have a much higher level of self-demand!*".

The women also highlight the need to work harder to obtain professional credibility:

> *Everything becomes more difficult, you have to be twice as assertive. You have to study the subject twice, you have to be and prove to others that you are twice as good, so that you'll be respected and be heard*. (F09).

5.2 Cooperation

Going against queen bee attitudes, 80% of the participants did not show self-group distancing and reported cooperative behaviors and strategies for support among women. Only one participant (3.3%) stated that in startups there are competitive behaviors among women, as shown in Table 4.

Given the recognition of gender inequalities, the underrepresentation of women, and the need to make greater sacrifices to integrate into the startup ecosystem, we observed a movement of mutual support among women, especially at the higher levels where they act as role models and mentors. Interviewee F17 points out that "*I contribute like this, I've been a mentor, I've led seminars, I've given talks... because they have... they always do hackathons, things like that*". F26 points out that she develops actions focused on women: "[...] *with programs for women, grants for the acceleration of startups led by women, seminars, we bring many female mentors and entrepreneurs,* [...] *who are angel investors*".

Table 4
Number of occurrences of the second-order themes of cooperation

Category	Second-order themes	Occurrences	Frequency
Cooperation	Female competition	1	3.3%
	Female cooperation	24	80%

These cooperative behaviors are also directed toward women at the beginning of their careers. F01 states that she usually gets involved in "[...] *training, conversations, mentoring to stimulate this point* [...] *of women's entry into the job market, especially in companies where they don't think they are suited to work in that position, right?*".

The leaders state that they also fight to ensure that female stereotypes are perceived as positive. They fight for structural changes and challenge beliefs that point to a lack of support among them. F10 says that she notices a

> [...] *very great mutual help, very great. So, I don't see it as... 'ah, because you're a woman you're going to take my place.' On the contrary, 'ah, because you're a woman, I'm going to help you so that we can go further together'.* (F10).

F14 reinforces this by stating, "*I see the effort that we're all making to break down our prejudices, our barriers, and to come together, and create and fight for space*" (F14). Thus, F30 states that "[...] *when there are more women, women always start with this view of 'let's hire women, right?'*".

In addition to mentoring and combatting gender stereotypes, the participants mention formal and informal collaborative networks that promote opportunities for women's professional development. Regarding formal meetings, the interviewees describe their participation as both organizers and attendees of events: "*I've already organized the women's Startup Weekend, I've already participated in women's hackathons. The digital port here in Recife has a branch that is Minas, Women, and Innovation*" (F16).

They confirm the existence of

> [...] *events targeted at the development of women in the technology area* [...] *Today the Ceará market* [...] *has a lot of growth for the female wing here, we're very supported, Google supports us, SEBRAE supports us, Banco do Nordeste supports us...* (F03).

According to F26, "*Female Founder is a gigantic group and we're always supporting each other, recommending a woman for things,* [...] *they support each other a lot... they're very empathic with each other, I don't see that there is competition*."

Informal collective actions are also described by the interviewees as important spaces for exchanges and mutual support among women. F07 provides another example of the construction of informal support:

> *We have a group for the women who work here. We had a meeting with the women who are here on a daily basis,* [...] *we had a debate and so on, and then this group was created and we still have it today, we meet every two months. And then we have* [...] *a WhatsApp group, that when something happens, we send it there too. And I think that helped a lot, right?* (F07).

5.3 Fighting the status quo

The results of our study also go against gender hierarchy legitimation. Contrary to what the QB attitudes suggest, 83.3% of the female founders of startups acknowledge experiences of discrimination in the organizational environment and 66.7% stated that they support gender equality policies, as shown in Table 5.

5.3.1 *Recognizing discrimination*

According to the academic literature on the QBP, gender hierarchy legitimation occurs through the denial of discrimination, adherence to the meritocratic discourse, and hostility to policies that aim to promote gender equality. As for the denial of the existence of discrimination, only one participant (F16) states that it is difficult to see gender discrimination:

Table 5
Number of occurrences of the second-order themes of fighting the *status quo*

Category	Second-order themes	Occurrences	Frequency
Fighting the status quo	Recognizing discrimination	25	83.3%
	Anti-meritocracy	3	9%
	Quota support	20	66.7%

> *People tend to say that women are discriminated against in terms of qualification. You see, I have a hard time thinking that this is... to assume that this is true, okay? I was never mistreated for being a woman, I was never discriminated against for being a woman, and if I ever was, I didn't even notice, because I'm not the kind of person who asks for permission to do things, I do them!* (F16).

When asked about their relationships with co-workers, clients, and investors, 25 women reported situations in which they experienced gender discrimination. Interviewee F11 affirms that "[...] *you always have to be prepared for a confrontation and to show that there is inequality*". In everyday life, in moments with her peers, F12 points out that "[...] *there are embarrassing situations, there are still sexist situations.* [...] *For example, sometimes we sit at a meeting table, there is only me and another woman, and sometimes our skills are put to the test*". This situation is emphasized in F08's statement when she says that her male colleagues make sexist remarks and do not realize it: "*I also identify* [...] *remarks that are a sexist, but without the intention of being sexist, but that men don't recognize that it is*".

Situations of discrimination and lack of respect are also reported in relation to customers. F15 describes a situation she experienced:

> [...] *arriving at the customer's office, he asked, 'yes, where's the person in charge of IT? 'It's me.' Then he looks at you and he gets suspicious, then you spend an hour for the person to give you credibility, you know?*

Other situations of questioning and mistrust are also reported: "*Sometimes there are clients who* [...] *'ah, let me test her because she's a woman and I'll try to do it this way,' but then you have to keep your posture, right?*" (F28).

Contact with investors is also characterized by uncomfortable situations, with interviewees reporting situations of harassment and invisibility. During a visit to an investor, F05 reported that the investor said to her male co-founder: "*It must be very hard for you to carry the startup on your shoulders alone. And me by his side. Then I thought: Really? I carry the company on my shoulders together with him, he's not alone*." F02 reported participating in an event where investors avoided contact with her: "*They didn't want to keep in touch with me. They wanted to keep in touch with my male partner. And they'd always bypass contact with me and go straight to him*." F04 reports that:

> *Two investors said, "I'll give you... easily that 1 million you need, but you have to change your niche, because yes...women, it'll take a long time for them to realize that the business needs to grow, women aren't greedy. If you place your product for men, you'll capitalize very fast and then the startup will grow much faster".* (F04).

The participants' statements indicate that they are aware of their experiences of discrimination and that women have fewer opportunities than their male counterparts: "*In several award events, we noticed that startups led by men or that had one man on the team were prioritized and considered more credible than startups led by women*". (F21).

5.3.2 *No adherence to the meritocratic discourse*

Consistent with the recognition of the existence of gender discrimination in the startup ecosystem, only two of the 30 women interviewed expressed adherence to meritocratic principles. The other women interviewed perceived the need to work harder for their own careers and the organization than their male colleagues. The participants perceived the quantitative superiority of men and the difficulties in reaching strategic positions: "*Women have difficulty reaching higher positions, right? So, there's no point in having 80% women on your team if the 20% that are the leadership, the CEOs, are all men, right?*" (F01).

Interviewee F26 reinforces this by stating that "[...] *in larger startups, the leadership roles are all held by men. This is because of male benefits, so just the fact of being a man is already a great privilege*".

F09's statement recognizes the startup ecosystem as a limiting environment for female performance and that strategic decisions are made by men: "[...] *women don't have the opportunity to show that they work as well as men, that they're equal in the situation*". In addition, the interviewees emphasize that they are not in favor of a war of the sexes, but that they seek greater gender equality, as can be seen in the report of F04: "[...] *women should receive enough support to achieve gender equity*".

5.3.3 *Support for gender equality policies*

The women affirm that they are aware of policies aimed exclusively at female entrepreneurship in startups, and reaffirm their admiration for organizations that have this type of action, as can be seen in the words of F06: "*I think it's interesting, I think it's valid, it's really cool who can do this type of action*".

The participants also report efforts to hire other women and mention public funding programs that seek to reduce gender inequality. Interviewee F23 explains that her "[...] *female partner herself has already been a mentor, including in a hackathon that was only for women in technology, which was to develop solutions and the inclusion of women in the technology market*". The selection process focused on recruiting women in technology was also presented by one of the interviewees: "*Similar curricula, we choose the woman, because we'd like to have more representation, more women on the team. We understand the importance of diversity, of representation*" (F06).

Participant F10 points out that although there is no set policy at her startup, she has been involved in hiring other women. F10 recognizes that this management practice aims to reduce inequalities, while acknowledging the extra effort needed to integrate women into the labor market: "*I have a very strong philosophy in the company, that the hiring priority, if I have two very good people for a function, I will always prioritize hiring a woman*".

Besides these initiatives in startups, the participants cite examples of incentives and report that they participate in actions developed by private and public institutions that aim to integrate women in the entrepreneurship and technology ecosystem, as F22 reports:

> *I participate in SEBRAE Delas, which is focused on the development of women in companies and business." F20 also highlights the actions of other companies: "Itaú Bank has Itaú Women Entrepreneurs, Bradesco Bank* […] *There are many women's initiatives coming from the private sector*.

6 Discussion

The purpose of this study was to analyze the adherence of women founders and co-founders of startups to QBP attitudes. From the textual corpus analyzed, we observed that, like women leaders in other professional contexts, women founders and co-founders of startups conform to male gender stereotypes (Derks et al., 2011, Faniko et al., 2017, 2021). They reported high levels of commitment, with a significant portion of their life devoted to work. They also reported having a number of agency traits, which they said was necessary to gain professional legitimacy in a predominantly male context. These agency traits are: assertiveness, not being afraid, and not feeling intimidated. Previous empirical studies analyzing the effects of gender and position in the organizational hierarchy have shown that holding a leadership position has a greater statistical effect on male identification than the gender of the respondent (e.g. Faniko et al., 2016).

Sperber and Linder (2023) mention that female entrepreneurs working in science, technology, engineering, and mathematics fields face the barrier between "being a woman" and "being an entrepreneur," which requires an adaptive approach to doing and undoing gender. In the role of entrepreneur, women are pressured to display agency traits (e.g. assertive, competitive, independent, and dominant) that are stereotypically attributed to men. And, at the same time, they need to exhibit behaviors that are desirable for women and associated with communal traits (e.g. patient, kind, nice, and compliant).

Previous empirical studies have shown that women are not disadvantaged in the financial fundraising process because of their gender, but rather that stereotypically feminine behaviors undermine the likelihood of obtaining the desired investment (e.g. Balachandra et al., 2019). Furthermore, Sperber and Linder (2023) state that the male dominance in the field is not related to women's external conditions, such as low education, lack of experience, or low quality of their startups, but rather because they are perceived as female and do not conform to male self-references. Similarly, we believe that adherence to stereotypically masculine traits is a requirement of the professional context in which the participants are embedded, rather than a genuine QB attitude.

Contrary to the assumptions of the QBP, the women interviewed in this study do not distance themselves from the self-group. Contrary to what is suggested by QB syndrome, which informs us that some women who have achieved professional and personal success would behave in ways that would create a barrier to the professional advancement of other women (Staines et al., 1974), we observed high levels of cooperation among women founders of startups. The participants reported participating in official and unofficial women's groups aimed at sharing professional support among women who share the same gender identity and have similar professional experiences.

The competitive and anti-feminist behaviors that some scholars (e.g. Staines et al., 1974) have identified as typical behaviors of the queen bee syndrome were refuted in this study with women in the startup ecosystem. The interviewees reported more cooperative than competitive behaviors among women.

Furthermore, the participants identified as feminists and/or showed that they shared the ideals of the feminist cause, such as being sympathetic to the idea of gender equality, promoting organizational practices that aim to establish gender equality, and promoting recruitment processes geared towards women when they notice a quantitative gender imbalance in some position or sector of the organization. Solidarity reinforces the feminist identity and strengthens women's demand for equality, as found by Cheng and Silva Jr. (2022). The feminist identity then looks to reduce self-group distancing and increase cooperative behavior among women.

Regarding the third dimension of the QBP, the findings of this study allow us to propose that the women interviewed do not legitimize the gender hierarchy. Similarly to what was observed for the second dimension of the QBP, the participants' statements do not correspond to the assumptions of the QBP. Thus, contrary to the assumptions of the third dimension, the interviewees support and implement policies that favor gender equality. They are aware that women need to work harder to obtain the result that a man would obtain with little effort, they feel penalized for this and do not adhere to the meritocratic discourse. The awareness of gender bias therefore seems to reduce gender hierarchy legitimation.

In view of the particularities of Brazilian culture (Coelho Jr. et al., 2022), the persistence of the markers of sexual division of labor (Hirata & Kergoat, 2007), and gender barriers in startups (Pavan et al., 2021), we assumed that women founders and co-founders of startups exhibit strong QBP adherence. Our study does not support this assumption. On the contrary, the participants were shrewd in denaturalizing sexist behaviors typical of the macho culture of the Brazilian Northeast and presenting sexual and sexist violence as experiences of gender discrimination. Our study corroborates previous research conducted with Brazilian women in public service (Arvate et al., 2018) and university (Grangeiro et al., 2023b), which suggested, respectively, the inexistence and low levels of QB attitudes in the professional contexts examined. Other non-Western studies on the QBP present similar results. A study conducted in private Turkish enterprises did not find queen bee attitudes among women leaders. Female employees of the private enterprises analyzed stated that their female managers were empathetic and supported them in their career development (Kobal, 2021). The findings of Xiong et al. (2022) also refute the existence of queen bee attitudes among Chinese female managers.

Finally, the female founders of startups who participated in this study did not display all of the traits and attitudes that characterize the QBP. Although they reported strong professional commitment and adherence to agency traits, we did not find a direct relationship between the presence of these attitudes and the participants' characterization as queen bees. We suggest that adherence to male identification is strongly impacted by the professional context in which the participants are embedded. In general, the participants reported attitudes contrary to the second and third dimensions of the QBP, except for one participant who reported distancing herself from other women and three participants who legitimized the gender hierarchy by denying discrimination, adhering to meritocratic discourse, or opposing equality policies. Even though these attitudes were rare among our participants, it is important to highlight them, since one queen bee leader can negatively impact the professional experiences of many junior women or women at lower levels of the organizational hierarchy (Abalkhail, 2020).

7 Conclusions

Examining the reliability of the interview coding process between researchers can be considered a strength of our study. The calculation of Cohen's kappa index and the subsequent harmonization of the coding process by two researchers were essential steps to increase the reliability and robustness of the analyses presented in this manuscript. Another positive aspect of our research is the use of qualitative methods. Usually, QBP studies apply quantitative approaches, and the fact that we conducted a qualitative study allowed us to access data that are inaccessible through surveys. By giving voice to our participants, we were able to go beyond findings that confirm or refute the existence of queen bee attitudes among female founders of startups. Moreover, we observed women who are sensitive to gender issues and aware of historical and social processes that disadvantage women. In order to respond to the sexist culture in which they are embedded, these women ally with colleagues of the same gender to promote women's professional development. The fact of having participants from different economic sectors (e.g. finance, social economy, agriculture, education), some male-dominated and others feminized, ensured the heterogeneity of the professional experiences lived by the participants, which we consider a strength of our study.

On a theoretical level, this study contributes to the advancement of the QBP by examining a male professional context where QBP attitudes are not salient. Previous studies have indicated that the male organizational context is conducive to the QBP (Faniko et al., 2021). This research highlights the opposite. Our results suggest that women's cooperation is facilitated by adherence to gender equality values. Based on our findings, we observe that adherence to gender equality values is related to adherence to feminist ideology. Thus, we believe that adherence to feminist ideology or feminist identity promotes the development of collective strategies to confront the gender threat faced by women in leadership positions. The cooperative and collective strategies strengthen women's connection to their self-group. We therefore suggest that adherence to feminist identity reduces the dimension of the QBP called self-group distancing.

We also suggest that awareness of historical female subjugation leads women to fight the status quo. Awareness of gender bias enables women to identify the gender barriers they face and to question male privilege, not to adhere to meritocratic discourse, and to support gender quotas. Thus, women who are aware of the gender bias tend to oppose the gender hierarchy legitimation dimension of the QBP. Therefore, the findings of this study allow us to contribute theoretically to the advancement of the QBP, as it enables us to review and include variables not yet retrieved in the QB literature that mitigate QB attitudes, such as adherence to feminist identity and gender bias awareness.

Also regarding theoretical contributions, the results of this study reinforce that women's collaboration may not be seen as the key to achieving gender equality at work. Women, individually or collectively, cannot be blamed for a social problem that has deep historical roots (Mavin, 2006). Collaboration among women favors women's career advancement but does not guarantee gender equality (O'Neil et al., 2011). This requires a willingness on the part of men to share positions of power and deeper changes in organizational culture.

In terms of practical implications, this study contributes to practitioners, diversity managers, and policy makers. Given the relationship we found between gender bias awareness and the reduction of QB attitudes, namely the legitimization of gender hierarchy, we propose the first practical contribution of our study. We suggest the implementation of practices that raise awareness of gender issues by exposing historical sexist processes that disadvantage women but also create masculinities that harm men. In addition, informal recruitment practices established by women to achieve gender balance among employees should be formalized as human resource policies in startups.

The non-probabilistic sampling method should be considered as a limitation of this study, since it can lead to biases regarding the participants accessed. Our second limitation relates to the snowball sampling strategy, which may have biased our sample. This could explain the large number of participants who are sensitive to gender issues and aware of gender inequalities. Even if generalization from a sample to a large population is not a concern for qualitative research, since generalizability differs from qualitative to quantitative research (Osbeck & Antczak, 2021), we acknowledge that 30 participants poorly represent female founders of startups in the Brazilian Northeast. Thus, the number of participants may be considered as a limitation of our study.

In this research, we focused on female founders from the Brazilian Northeast, which contributes to gender studies since it is a region strongly characterized by sexism (Nicholus, 2019). Nevertheless, we suggest that future research expand to other Brazilian regions and compare the results of regions that are less and more characterized by sexism. Future research could also consider analyzing the impact of gender composition and of organizational context (male, mixed, female) on the male identification dimension of the QBP. In addition, we suggest analyzing, by means of quantitative research, the impact of feminist identity and gender bias awareness on the QBP dimensions, more specifically, the impact of adherence to movements favoring gender equality (feminist identity) on self-group distancing and the impact of gender bias awareness on gender hierarchy legitimation.

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SUPPLEMENTARY MATERIAL

Supplementary material accompanies this paper.
Supplementary Data 1 – interview script
Supplementary Data 2 – transcription of the interviews
Supplementary Data 3 – codebook and codes
This material is available as part of the online article from https://doi.org/10.7910/DVN/PVNHCE.

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Authors:
1. Rebeca da Rocha Grangeiro, PhD. in Psychology, Universidade Federal do Cariri, Juazeiro do Norte, Brasil.
E-mail: rebeca.grangeiro@ufca.edu.br
2. Manoel Bastos Gomes Neto, Undergraduate Degree in Business Administration, Pontifícia Universidade Católica de Minas Gerais, Belo Horizonte, Brasil.
E-mail: manoel.bastos@sga.pucminas.br

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1st author: Definition of research problem; development of hypotheses or research questions; definition of methodological procedures; data collection; literature review; analysis and interpretation of data; critical revision of the manuscript; manuscript writing.
2nd author: Definition of methodological procedures; data collection; literature review; analysis and interpretation of data; critical revision of the manuscript; manuscript writing.