

Gender bias in medieval inquisitions and its place in shaping knowledge about the heterodox

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Abstract

This study examines gender bias in the investigative practices of medieval inquisitors, focusing on Albert of Castellario's 1335 trial of the Waldensians in Giaveno, Italy. Situating our analysis within sociological and criminological frameworks, we conceptualize inquisitorial trials as structured yet discretionary information-gathering processes shaped by the inquisitor's judgments about which leads to follow and which testimonies to prioritize. Employing social network analysis and survival methods, we evaluate whether Albert demonstrated gendered biases in his investigative decisions, particularly regarding the weight assigned to testimonies from men versus women. Our findings demonstrate that Albert systematically prioritized testimonies from male informants, even when similar levels of incriminating evidence were present for both genders. This bias highlights the significant role of societal gender norms in shaping inquisitorial practices, raising questions about the reliability and representativeness of historical records of heretical movements. Beyond showing Albert's gendered biases, this study underscores the broader utility of our methodological framework for addressing related historical inquiries, including the political motivations behind the medieval inquisition.

Keywords: inquisition, gender, heresy, Middle Ages, social network analysis, survival analysis.

Introduction

During the High and Late Middle Ages, Europe saw the emergence of religious movements condemned as heretics by the Church, such as the Cathars, Waldensians, Guglielmites, Lollards, and Hussites, among others (Wakefield and Evans 1991). While these movements were primarily defined by their opposition to orthodox Christianity, they could engage with broader societal changes, particularly gender-related ones. Historians have long debated the roles and experiences of men and women within these groups, as well as the extent to which religious dissidence offered spaces of liberation from orthodox religious hierarchies (Arnold 2013; Green 2017; Koch 1962). Proponents of this view argue that such movements provided opportunities for women to attain leadership roles or transcend traditional societal limitations, making them particularly appealing to women. This argument draws attention to the significant presence of women among heretics and the pastoral elite of these communities (Benedetti 2005, 2022; Biller 2001, 2010; Shahar 2001). Conversely, critics contend that the gender composition of these movements mirrored (at best) that of medieval society at large (Abels and Harrison 1979) or that movements like Lollardy and Waldensianism even reinforced patriarchal structures through their adherence to “scriptural fundamentalism” (McSheffrey 1995).

Our understanding of medieval heretical movements relies heavily on sources produced by their persecutors—namely, the Church and its inquisitors. This reliance has prompted increasing scrutiny of how inquisitorial practices and preconceptions shaped historical narratives (Biller 2001). Scholars have identified several potential sources of distortion, including inquisitors’ preconceptions about each gender, their interrogation methods, the choice of questions, the narrative construction, the compilation of registers, and so on (Arnold 2001; Bruschi and Biller 2003). Despite these observations, little is known about how inquisitors’ attitudes and investigative decisions influenced their documentation of heretical communities beyond what is outlined in inquisitorial manuals or inspired by Church legislation (Hill 2019). Specifically, how did inquisitors’ implicit gender biases shape the heretical networks they uncovered? To what extent did these biases influence the knowledge we now possess about these movements?

Some studies have begun to address these questions. For instance, Vise (2018) and Moore (2019) observe procedural differences in Bologna around 1300, where women and men were interrogated in different locations—women in the church and men at the inquisitor’s court. However, these spatial distinctions did not seem to have translated into explicitly gendered investigative procedures, as neither of the major inquisitorial manuals from the 14th century discussed specific protocols for handling male versus female suspects (Eymerich 1587; Gui 1886). Other studies highlight gendered patterns in the roles of witnesses and informants. Biller (2010) notes that women comprised the majority of witnesses interrogated by inquisitor Peter Zwicker in Szczecin (present-day Poland) in the early 1390s, despite the incomplete survival of this material. He also suggests that gender homophily—the tendency to report on members of one’s gender—may have influenced the data gathered. As he puts it, referring to the records of inquisitor Peter Sellan’s sentences against the heretics of Languedoc from

1241-2, “women noticed women” (Biller 2001). In a related vein, Biller (2022) remarks on the prominence of women as initial informants in the Waldensian trials conducted by inquisitor Albert of Castellario in Giaveno, Italy (1335), and draws parallels with other trials in Szczecin (1392), Strasbourg (1400), and Fribourg (1430), where women played prominent roles as reporters (cf. Merlo 1977: 163–64; Välimäki 2019). Shahar (2001) takes a more radical stance, asserting that inquisitors viewed men and women equally, disregarding gender asymmetries in their information-gathering efforts. This conclusion, however, is based on selective evidence, such as inquisitor Jacques Fournier’s interactions with two Waldensian women in Pamiers (Languedoc), potentially conflating the purported freedom heresy offered women with the “freedom” to discuss their faith during interrogations.

This study builds on existing scholarship by investigating whether inquisitors exhibited a biased attitude towards men and women in their investigative practices. Specifically, we examine whether inquisitors showed a stronger tendency to pursue leads involving suspects of either gender, mapped their social networks more comprehensively for one gender, and how these biases affected the composition of heretical communities revealed through trials. Theoretically, we draw on sociological literature on official information gathering and criminological studies of deviance persecution. Concepts such as “census production” (Emigh, Riley, and Ahmed 2016; 2020), “tie appropriation”—the exploitation of social ties for investigative purposes (Headworth 2019)—and “detective discretion” (Corsianos 2003; Ericson 1981; Galligan 1990) inform our understanding of inquisitorial practices. We conceptualize an inquisitorial trial as an iterative process of tie appropriation, where the inquisitor selectively expands their investigations based on previously collected information (e.g., reports from informants and suspects).

Empirically, our study focuses on records from the trials of the Waldensians in Giaveno, Italy, conducted in 1335 (Merlo 1977). Using social network analysis tools (Borgatti et al. 2022; Crossley et al. 2015), we analyze differences in the number and gender of individuals implicated by male and female witnesses. We also employ a counterfactual approach to assess whether accusations from men and women had comparable impacts on the scope of heretical networks uncovered. Finally, we utilize survival analysis methods (Mills 2011; Hosmer et al. 2008) to determine whether the inquisitor exhibited gendered patterns in citing suspects for questioning. Our findings indicate that while men and women provided similar numbers of accusations, the inquisitor pursued leads involving men more aggressively, even when comparable levels of incriminating evidence were present.

Our study makes several key contributions. First, it challenges prior research that highlights the prominence of women as informants in heretical trials (Biller 2022; Shahar 2001) by revealing a systematic gendered disparity in inquisitorial priorities. Implicit biases likely influenced the inquisitor’s evaluation of men’s and women’s reliability, shaping the heretical networks documented in trial records. More broadly, our findings underscore the role of information-gathering processes in shaping historical realities. Even processes aimed at meticulous documentation, such as inquisitorial investigations (Given 1997: 25–51), are susceptible to systemic biases. This insight bridges scholarship on official information-

gathering practices (Emigh, Riley, and Ahmed 2016; 2020) with research on the production of inquisitorial discourse (Arnold 2001). Second, our study sheds light on the evolution of pre-modern heretical movements. Institutional changes within these movements may have been shaped not only by internal ideological developments (McSheffrey 1995) but also by external pressures, including sustained—and potentially gender-biased—persecution. For instance, the gendered "division of labor" observed in movements like the Waldensians (Biller 2001; 2010) may reflect adaptive responses to such persecution. Finally, our methodological framework—combining social network analysis, counterfactual reasoning, and survival analysis—offers a robust tool for disentangling the agency of inquisitors from that of their subjects. This approach not only uncovers gender biases in inquisitorial practices but also provides a foundation for exploring other forms of bias, such as political or social status-related motives, in the persecution of heretical groups (Lansing 1998; Rehr 2019).

The Medieval Inquisition, Tie Appropriation, and Detective Discretion

Research on official information gathering by Emigh and colleagues (2016; 2020) underscores that data collected in institutional settings is neither an objective nor exhaustive representation of reality. Instead, it reflects the power dynamics between the collectors and the subjects of investigation, shaped by state-imposed standardization strategies and the interactions between social actors and investigators. Similarly, the records produced by the inquisitions against “heretical depravity”—the tribunals established by the medieval Church to combat heresy—exhibit these characteristics. Inquisitorial records are shaped by the interplay of two key agencies: the inquisitors and their methods, and the individuals under investigation, whose responses and actions influence the data (Given 1997). As a result, the records function as a form of “census” that identifies individuals as heretics or suspects, but they are inevitably marked by the biases and limitations inherent in the investigative process (Arnold 2003; Rehr 2019). Therefore, understanding the practices of the inquisition is essential before attempting to analyze the contents of these records.

The term “Inquisition” typically refers to a series of *ad hoc* tribunals operating under papal authority and staffed by mendicant order members. These tribunals were tasked with identifying heretics, establishing their guilt, extracting abjurations of heresy, and issuing sentences when necessary (Given 1989; J. Moore 2019). Despite efforts by the Church to regulate aspects of the process—such as the administration of torture or procedural sequences (Arnold 2001; Kelly 2015; Mansi 1901: col. 689ff)—the medieval Inquisition lacked centralized oversight or a unified organizational structure. As Elliott (2009: 2) observes, “the term [Inquisition] is more reflective of a process than of an institution.” Consequently, trials varied significantly, depending on the jurisdiction, zeal, and expertise of individual inquisitors, as well as the degree to which they adhered to Church guidelines (Kieckhefer 1995; Kelly 1989).

In practice, inquisitors generally adhered to a loose structure and sequence of proceedings. After initiating a case, they offered a grace period during which individuals, especially from heretical groups, could testify in exchange for leniency. The central and typically longest stage was the investigation. During this phase, the inquisitor relied heavily on testimonies

obtained during the grace period or earlier, allowing him to issue summonses and interrogate individuals named in prior testimonies. These witnesses would deliver their testimony under oath and be expected to confess their crimes and provide further names of suspected heretics, creating an iterative process of investigation and network expansion (Given 1989; Hill 2019).

The criminological concepts of “tie appropriation” (Headworth 2019) and “detective discretion” (Corsianos 2003; Ericson 1981), offer valuable insights into how inquisitors operated and shaped the records they created. “Tie appropriation,” as defined by Headworth (2019) in his study of modern U.S. fraud investigators, refers to the process by which outsiders leverage individuals’ social connections to gather incriminating information. Investigations often depend on the ability to exploit these connections, whether through voluntary reports driven by grievances or more intrusive methods, such as co-opting close personal relationships (Headworth 2019: 174–77). Inquisitors similarly relied on the social ties of informants—often fellow villagers or relatives—to uncover broader heretical networks. This iterative process expanded the scope of their investigations, with each new testimony providing leads for additional interrogations. The information acquired shaped the range of suspects who could be summoned later, reinforcing the cumulative nature of the investigation.

Inquisitors also exercised significant “discretion,” a term used in legal studies to denote the power conferred on officials to use their judgment to decide which actions to take in any given situation (Corsianos 2001, 2003; Ericson 1981; Galligan 1990). Officials use discretion to determine what and to what extent to investigate, whom to question, and consequently, which cases receive attention (Davis 1969; cf. Black 1973). Discretion allowed inquisitors to decide whom to summon, what to investigate, and how extensively to pursue leads. This autonomy stemmed partly from the lack of centralized oversight (Given 1989; Kieckhefer 1995). Additionally, medieval anti-heretical tribunals were modelled after the inquisitorial procedure adopted by the ecclesiastical courts in the twelfth century. This allowed the inquisitors to take action against suspects *ex officio*—without the need for a plaintiff—and to assume an active role in citing witnesses and accumulating evidence (Given 1989; Vallerani 2012).

While discretion enabled inquisitors to comprehensively map heretical networks—seeking to eliminate the “spaces on which the heretic masters can rely” (Merlo 1977: 139)—its application was not immune to individual biases. For example, preconceptions about gender could influence how inquisitors prioritized leads or allocated investigative resources. This study builds on prior research addressing gender-based distortions in heretical records, moving beyond procedural variations (Vise 2018) and gendered reporting biases (Biller 2010) to explore how discretionary decisions shaped the documentation of heretical networks. Based on the concepts of tie appropriation and detective discretion, we assess whether inquisitors demonstrated a gender-biased approach. Specifically, we examine the extent to which male and female deponents influenced the progression of trials, as well as the urgency with which inquisitors summoned individuals of each gender. This approach allows

us to evaluate how gender shaped the investigative process and the heretical networks captured in trial records.

The next section introduces our case study: the 1335 trial of the Waldensians in Giaveno. We then outline our methodologies, analyze gender-based differences in accusatory patterns and summons timing, and discuss the broader implications of our findings.

The trial against the Waldensians in Giaveno (1335)

Our study uses the records of the inquisitorial process against the Waldensians in Giaveno, a town in the Italian region of Piedmont, during the winter of 1335. The Waldensians, also known as the “Poor of Lyons,” were adherents of an ascetic and evangelical movement established around 1170 following the conversion of Vaudès, a wealthy citizen of Lyons, to a life of poverty and preaching. Initially tolerated by the local ecclesiastical hierarchy and the papacy, conflicts over the right to preach led to their excommunication in 1184 and their formal declaration as heretics by 1215. Waldensian ideology subsequently spread to surrounding regions, reaching Italy before 1200 and the valleys of Piedmont, likely sometime during the thirteenth century (Audisio 1999).

The trial was led by Albert of Castellario, a member of the Order of Preachers and the inquisitor in the Dominican province of Upper Lombardy (Grandjean 1884: 711–12; J. Moore 2019: 54–56). Judging from how he identified himself—*Albertus de Castellario de Cuneo* (Merlo 1977: 163)—he likely hailed from the town of Cuneo, located in the same region he would later traverse as an inquisitor. While there is little known about Albert, it is plausible that he was older than forty years of age, given that the decretal *Multorum querela* of the Council of Vienne (1311–1312) mandated that no inquisitor be younger than forty (Friedberg 1955: col. 1182, cap. 2). The Giaveno process was certainly not his first, as he had led several inquisitions between 1332 and 1334 in Perosa, Luserna, and Pinerolo, all places within his jurisdiction (Gabotto 1898; 1900). His dispatch to Giaveno followed the activities of certain Waldensian masters, including a prominent figure named Martin, who had seemingly evaded prosecution for two decades (Eubel 1898: 530 doc. 987).

The original Latin manuscript, containing notes on the summonses issued by the inquisitor, the accounts of each deposition, the enumeration of transgressions for each suspect, and the list of verdicts and imposed sentences, is currently held at the Archives of the Order of Preachers in Rome (Archivio generale dell’Ordine dei Predicatori, Rome, MS II.64, ff. 1r–111v). We used the modern edition of the register published by Merlo (1977: 161–255).

This register proved most suitable for several reasons. It is one of the few medieval registers with such a breadth of information preserved nearly intact, with minimal lacunae and no significant missing sections. While the manuscript ends abruptly, leaving some doubt about missing data regarding the punishments handed down by Castellario, the depositions—crucial for our work—appear to be fully preserved. These records detail whether (and when) a person had been summoned and the accusations they brought before Albert.

This case study also benefits from the predominantly rural demographic composition of the Waldensian community (Audisio 1999; 2006). This characteristic reduced the chances that the inquisitor would prioritize individuals for economic gain or political motives (Lansing 1998; Rehr 2019). As a result, Giaveno offers an ideal setting for isolating gender effects. The records mention professions for only 19 individuals (7.1% of the 267 suspects or testifiers), further indicating a largely homogenous community composed mostly of peasants and laborers. With the Waldensians declared heretics over a century earlier and Giaveno's proximity to regions previously investigated by inquisitors, we can infer a high degree of local familiarity with inquisitorial procedures and the potential consequences of denouncement.

The process in Giaveno began on January 20 and likely concluded around February 26, 1335. While the last recorded entry in the register is dated February 23, it is probable that the proceedings formally ended on February 26, a Sunday, which would have been a customary day to conclude an inquisitorial process. During the initial phase from January 20 to 28, Albert conducted preliminary interviews with a few locals, including two priests and several laypeople, among them two women—one notably more eager than the other in accusing others of heresy. On January 29, following standard procedure, Albert declared a three-day “period of grace,” after which the core phase of the trial commenced.

The register mentions four public summonses announced on February 2, 6, 8, and 19, containing the names of 30 individuals. In addition to these public summonses, 60 individuals were cited individually at different moments throughout the trial, as inferred from their depositions. By the end of the trial, Albert had summoned 90 individuals (60 men and 30 women), of whom 85 provided their depositions. Five individuals ignored the citations. Testimonies from other suspects indicate these individuals had left town.

In addition these 85 testifiers, 25 other individuals also provided testimony, bringing the total to 110 people interviewed by the inquisitor. These testimonies, given by 76 men and 34 women, explicitly named 238 individuals suspected of adhering to the Waldensian heresy, some of whom also served as testifiers. In terms of unique testifier-accused pairs, the register documents 747 accusations. Overall, the trial involved 267 unique individuals—156 men and 111 women—who appeared either as testifiers, suspects, or both. This total excludes sixteen Waldensian masters, as they were not Castellario's main targets and did not reside in Giaveno.

Figure 1 illustrates the number of individuals summoned and interviewed over time, differentiated by gender. When the date of an individual's citation is unknown, we have assumed it occurred the day before their deposition. Given that the average time elapsed between public summonses and appearances before the inquisitor is 0.64 days, it is unlikely that these individuals were called to appear before the inquisitor much earlier. Both the summonses and testimonies exhibit a discernible temporal pattern. This pattern is particularly noticeable in the case of the summonses, which reveal a distinct focus on men around the middle of the process. Women appear to have played a more significant role at the beginning and end of the investigation.

Figure 1 here

Analytical strategy

Network analyses of the accusations reported to the inquisitor. Our analyses begin by examining the testimonies of the 110 individuals interrogated by the inquisitor. Using the names of individuals accused of heresy mentioned in these testimonies, we construct a network where a tie from person i to person j indicates that the former accused the latter (see Figure 2). Then, to explore potential differences in the quantity and nature of information provided by men and women, we apply several ego-network measures (Crossley et al. 2015).

Figure 2 here

In our context, out-degree measures the number of individuals a person reported. Comparing the out-degrees of female and male testifiers allows us to see whether men and women, on average, accused a different number of people. To assess whether men primarily reported men and women reported women, as Biller (2010) contends, we use two homophily measures: the EI index and Yule's Q (Crossley et al. 2015, chap. 4). The EI index calculates homophily by subtracting the number of same-gender accusations (I) from other-gender accusations (E), then dividing by the total number of accusations ($E+I$). Values near -1 indicate strong homophily, while values near $+1$ indicate strong heterophily. Yule's Q further accounts for subgroup sizes; here, -1 indicates perfect heterophily, and $+1$ denotes perfect homophily. For its calculation, we use the 136 men and 102 women reported during the trial.

Our focus, however, is on how the inquisitor acted on accusations rather than the number or type of accusations made by each gender. To investigate this, we analyze the entire accusation network to look for evidence of whether the inquisitor seemed more thorough in following leads from either gender. For this, we rely on the concept of reachability (Borgatti et al. 2022: 19–22), which reflects the idea that the value of an accusation lies not only in the accusation itself but also in its ability to open paths to other individuals. In a network, one individual can reach another if there is a sequence of directed ties connecting them. This notion of a directed path is crucial here, as inquisitors typically built their investigations by iteratively following the connections provided by their informants.

We conduct a counterfactual analysis. First, we remove all outgoing ties from the 34 female testifiers and calculate how many individuals are reachable from each remaining male testifier (76 men). This provides an estimate of the “incriminating power” of men as a group—how many individuals the inquisitor would have uncovered had he disregarded the leads provided by women. We then repeat the process by removing the accusations of 34 men to estimate the outcome had the inquisitor disregarded an equivalent number of male testimonies. If the resulting values are similar, it suggests that the 34 women had a comparable influence on the overall trial as 34 men. A difference in values, on the other hand, would point to a discrepancy in incriminating power based on gender or suggest that the inquisitor more thoroughly pursued accusations from one gender over the other.

Given the 4.54×10^{21} possible combinations of 34 men, we sample 5,000 instances from this vast universe of possible combinations. Using kernel smoothing (Silverman 1986), we transform the resulting values into probability density functions. To assess the extent to which the distributions of incriminating power overlap—comparing results after excluding either 34 men or the 34 women—we calculate the overlapping coefficient (OVL) as described by Inman and Bradley Jr. (1989).¹ Then, we conduct a two-sample Kolmogorov-Smirnov test to determine if these distributions are derived from the same population. Given that the data are count-based, which can lead to tied values, we use Monte Carlo simulations to generate more precise p-values (Schröer and Trenkler 1995).

Since not all individuals provided their testimonies under similar circumstances—particularly as four men testified after being tortured—we repeat the comparison. This time, instead of sampling 34 men from the 76 who provided their depositions, we narrowed these 76 to those whose testimonies were given under conditions comparable to those of the women. We achieved this subset of men through coarsened exact matching (Iacus, King, and Porro 2009; 2012) on three key variables: date of testimony, summoned status (whether an individual’s testimony came after being summoned to appear before the inquisitor), and torture status. The matching reduced the pool of selectable male testifiers from 76 to only 48.²

Figure 3 visually displays the results of the matching. In Panel B, we observe that, after matching, the dates of testimonies from men and women are more aligned, as many of the excluded men appeared during the middle phase of the trial. Panel D confirms that the matched sample excludes the four men who underwent torture, ensuring that the impact of excluding the 34 women is compared only to an equal-sized group of men who were not tortured.

Figure 3 here

Survival analysis of the summonses issued by the inquisitor. While the network analysis of accusations offers insight into the relative impact of the 34 female testifiers compared to a (matched) sample of 34 men, it does not account for the timing of events or clarify the inquisitor’s role versus the actions of those under investigation. To address these limitations, we complement this analysis with an examination of the summonses issued by the inquisitor. By assessing differences in the probability and timing with which individuals were summoned, we can evaluate whether the inquisitor’s behavior shows evidence of a preference for one gender or a consistent approach across both.

¹ The OVL is calculated by integrating the minimum of the two density functions over the relevant interval. In our case, $OVL = \int \min [f_w(X), f_m(X)]dX$ where $f_w(X)$ represents the density function of reachable individuals excluding the accusations reported by the 34 women, and $f_m(X)$ is the same function excluding the accusation from 34 men. The OVL ranges from 0 (no overlap) to 1 (identical distributions).

² Coarsened exact matching involves three steps. First, it coarsens each quantitative control variable into bins of similar values. Next, it sorts all units into strata, each having the same values for the coarsened variables. Finally, it prunes units from any stratum that lacks at least one treated and one control unit. In our case, we matched the 110 individuals who provided testimony based on the three dimensions mentioned. Being summoned and undergoing torture are both categorical, requiring no coarsening. For the date of testimony, values were coarsened into 5-day bins. The method successfully found matches for all 34 women within a sample of 48 men, resulting in the pruning of 26 men whose values did not correspond to any women.

For this, we construct a person-day dataset where each individual reported to the inquisitor contributes daily observations from the day their name was first mentioned until they were summoned. Entry into the dataset begins with the individual's first accusation, which serves as the clearest starting point (though some may have come to the inquisitor's attention through other means). Individuals exit the data upon being summoned, and observations for those who were never summoned are censored on the final day of the trial (February 26). Our choice of entry and exit points requires the exclusion of individuals summoned on or before their first accusation, as their timing falls outside our observational range. This exclusion affected 11 individuals (7 men and 4 women). Also, we excluded information about a few individuals known to have passed away. The final dataset consists of 3,497 person-day observations from 219 unique individuals, covering a maximum of 35 days (from January 20 to February 26). Within this period, the inquisitor issued 79 summonses (the event of interest).

Figure 4 presents the hazards of being summoned and survival probabilities, broken down by gender, alongside the evolution of the risk set—the pool of individuals who were reported but had not yet been summoned. The left-hand panels present these values over calendar time, while the right-hand panels plot them relative to the time elapsed since each individual's first accusation, which serves as the analysis time in our study.

Figure 4 here

Panels A and C reveal a gendered difference in timing: while summonses for men began immediately after the Grace Period (January 31), summonses for women did not start until around February 12. Importantly, it appears that this gap in timing cannot be attributed solely to delayed reporting of women—by January 31, the inquisitor already had 45 male and 27 female suspects. Nor can it be explained by the inquisitor exhausting male suspects and thus turning to women (see Panel E). Panels B and D, which track summonses from the date an individual was first reported, reveal a less pronounced gender difference. Nonetheless, the continued disparity in timing and the percentage of individuals summoned suggests a more thorough pursuit of male suspects. The hazards for both men and women appear non-monotonic, initially rising and then falling as time progresses since the first accusation

To evaluate the presence of a discrepant behavior based on gender, we control for several potential confounders. Since individuals entered the suspect pool at different points, we control for each suspect's "Day of accusation," defined as the number of days since the trial began (ranging from 1 to 35). This variable helps account for any shifts in prosecutorial focus over time. We also account for the "Number of accusations received"—the total number of testifiers who implicated each suspect—which could indicate their centrality in the heretic network and thus increase their likelihood of being summoned. Additionally, we include "Number of kin accused," reflecting the possibility of summons by association (Pontikes, Negro, and Rao 2010), as heresy was often a family affair (Given 1997).³

³ Other sources of association may include professions (e.g., guild affiliation) and patronage, but these connections are elusive in our data due to the scant references to professions or any indication of money

To control for personal connections to key figures, we introduce two proxy variables: “Acquaintance with Martin” (a prominent Waldensian master who was of particular interest to Albert) and “Acquaintance with Francis” (another active master in and around Giaveno). Although other masters were mentioned in the records, they were linked to either Martin or Francis, so we did not include separate proxies for them. Finally, we also capture whether an individual hosted a Waldensian congregation (“Host to congregation(s)”). It seems reasonable to target organizers of heretical meetings, as such individuals were likely perceived as committed adherents if not ringleaders within the heretical movement.

All covariates, except for gender (coded as 1 for women and 0 for men) and “Date of accusation,” vary over time. However, status changes are only captured at the day level since we lack information on the order of events within each day.

Our approach to analyzing the data has been informed by several considerations, broadly categorized into those concerning the shape of the data and the role of time in the information-gathering process. The latter includes the itinerant and temporary nature of inquisitorial tribunals in general, and specifically the one in Giaveno. Time was both an essential and costly resource in such proceedings. The way the inquisitor(s) managed the allocated time and the sequence of interrogations not only provides insight into their reasoning but also influenced the trial’s overall outcomes. These aspects warrant careful consideration of interactions between covariates—particularly gender—and the timing of summonses, which may reveal fluctuations in their impact on the chances of someone being summoned as time passed since their first accusation.

Shaping of the data into person-day format, with covariates defined at one day intervals, enables both discrete-time and continuous-time approaches to modelling the inquisitor’s summoning practices. Although the data is inherently discrete, our chosen unit of time is sufficiently precise to support the application of continuous-time methods.

We therefore assess the impact of gender and other covariates on the timing of summonses through several steps. First, we examine the proportionality of hazards for all covariates over the studied period, with particular focus on gender differences (between women and men). In proportional-hazards survival models, the dependent variable of interest is the hazard—the probability of experiencing the event (in this case, a summons)—which is assumed to be proportional across covariate levels. The baseline hazard function, $h_0(t_j)$, may vary over time, yet it is multiplicatively affected by hazard ratios ($HR = e^{\beta x_{ij}}$), which do not depend on time. This implies that hazard functions for different covariate values remain equidistant, meaning that covariates exert constant effects regardless of time. However, proportional-hazards models can be extended to allow for time-dependent effects. We achieve this by

lending or patron-client ties. This contrasts with other sources, especially those dealing with Cathars, which often include mentions of high-status jobs (merchants, prosperous artisans, civic treasurers, etc.) or nobility positions. Notable examples can be found in the cases of Toulouse (Pegg 2001), Orvieto (Lansing 1998), and Bologna (Paolini and Orioli 1982).

incorporating interactions between covariates of interests and the logarithm of time, allowing the regression coefficient for these covariates to change over time:

$$h(t_j|x_{ij}) = h_0(t_j)e^{\beta_1 x_{1ij} + \beta_2 x_{2ij} \ln(t_j)}$$

A violation of the proportional hazards (PH) assumption, along with significant interactions between covariates and time, would indicate that the effects of the predictors change over time—in our case, reflecting shifts in their influence on the probability of someone being summoned as their time under the inquisitor’s consideration progressed. We estimate Cox proportional-hazards models and test the proportional-hazards assumption along with the significance of interactions with time (Grambsch and Therneau 1994; Hosmer et al. 2008; Royston and Lambert 2011).

We conclude our analysis with log-normal accelerated failure time (AFT) models, which in several respects provide a better fit to the data. The accelerated failure time approach addresses limitations of proportional-hazards models while the log-normal models accommodate non-monotonic hazard functions.⁴ Whereas parametric survival models typically assume hazard functions that either increase or decrease over time, the log-normal AFT model allows for hazard rates that may rise initially and then decline, aligning with the observed patterns in the data (see Figure 4). Moreover, unlike PH models, which assess the effect of covariates on the hazard rate, AFT models directly captures the “time-until” events and the impact of covariates on accelerating or decelerating this waiting time. In the context of log-normal AFT models, the logarithm of survival time is linearly affected by covariates, with the error term following a normal distribution. Thus, the model resembles a linear regression with the addition of possible censoring:

$$\ln(t_i) = \beta_0 + x_i \beta_x + \epsilon_i, \epsilon_i \sim N(0, \sigma^2).$$

Rather than estimating hazard ratios, the model estimates the parameters of the log-normal density, survival, and hazard functions, $\mu = \beta_0 + x_i \beta_x$ and σ , where parameter μ is directly affected by covariate values. This makes the AFT models particularly suitable for our framework, as we examine how the inquisitor managed his limited time and prioritized summoning certain witnesses over others (Rabe-Hesketh and Skron dal 2022; Cleves et al. 2016).

Results

Similar number of accusations, different degrees of incriminating power. Figure 5 compares the behavior of the 110 testifiers by gender, displaying the number of individuals reported (Panel A) and the level of gender homophily—whether testifiers were more likely to name individuals of their own or the opposite gender (Panels B and C).

⁴ The suitability of the log-normal special case was further supported by the non-significance of the *kappa* parameter in a generalized-gamma AFT model ($\kappa = -0.278$, $CI_{95\%}: -0.695, 0.137$) (Cleves et al. 2016).

Figure 5 here

We find no significant difference in the number of individuals reported by gender. Among the 76 male testifiers, 65 (85.5%) reported at least one name, compared to 27 of the 34 female testifiers (79.4%). Men reported an average of 7.54 names, while women reported 5.12 (with medians of 5 and 4.5, respectively). Given that one man, Iohannes Gauterii, an outlier subjected to torture, reported 65 names, we conduct a non-parametric rank-sum test (Hollander, Wolfe, and Chicken 2013: 115-36), which renders no evidence of one gender accusing more individuals than the other (Panel A).

While the number of accusations seems similar, gender differences appear in homophily measures. The EI index (Panel B) and Yule's Q (Panel C) both show that men predominantly accused other men, while women reported more men than women. This supports Biller's (2010) claim that women might be more likely to notice other women; however, that women primarily reported men suggests that heretic networks were less gender-segregated than assumed, with men perhaps less inclined to notice women.

To understand how the inquisitor acted on this information, we compare the number of individuals reachable by each testifier after excluding the accusations reported by women and, separately, after excluding the accusations reported by a sample of 34 men (see Analytical Strategy for details). Figure 6, Panel A, presents this comparison.

Figure 6 here

Excluding the 34 women's testimonies (dark grey) produces a bimodal distribution: some density around zero and a larger mass between 150 and 200, with a median of 173. This suggests that while a few men had little effect on the trial (either due to silence or lack of inquisitor follow-up), a single man's accusations could implicate around 173 individuals (72.6% of all reported). Excluding 34 male testimonies instead reveals a more dispersed distribution with lower overall values, and a median of 113. Overlap between the two distributions is low (OVL = 34.21%), and primarily around zero. A Kolmogorov-Smirnov test further confirms that it is highly unlikely the two distributions come from the same population.

Panel B in Figure 6 presents the results when the sample of men whose accusations are excluded is restricted to a subset of 48 men matched to at least one of the 34 female testifiers. In this scenario, the differences between excluding 34 women and 34 men narrow considerably, with the median value rising to 144 individuals (up from the previous 113). Despite this increase, the overlap between the two distributions remains modest (35.47%), and the Kolmogorov-Smirnov test again strongly indicates that the distributions are unlikely to come from the same population.

These analyses reveal two key findings. First, men's accusations seem to have had a greater influence on the trial overall, as suggested by the number of individuals reached in their absence. Second, the difference in influence between men and women may have been

amplified by the inquisitor's actions, as the men excluded in the second comparison primarily testified during the trial's middle phase—when the inquisitor heightened scrutiny. In the next section, we examine the timing of summonses to assess whether the inquisitor's approach reflects a more rigorous investigation of one gender over the other.

Gender differences in summons timing. Before diving into formal testing, we first look at the evidence associated with each gender at the time of their summons. Comparing the average dates of summons shows about a one-week delay for women. Additionally, when looking at the time elapsed since the first accusation, we find that men were summoned after an average of 14.5 days, compared to 18.9 days for women. This suggests women were generally summoned later and with less urgency than men.

In terms of accusations received at the time of summons, men averaged 2.13 accusations, while women averaged 3.77. A similar trend appears in accusations against kin: men averaged 1.47 kin members accused, while women averaged 2.08. Moreover, 14 summoned men (26.4%) were associated with the Waldensian leader Martin, compared to 53.8% of summoned women. This gender disparity was even larger for association with Francis, with 17.0% of men versus 57.7% of women linked to him. These patterns suggest the inquisitor needed more incriminating evidence to summon women than men. Only in accusations of hosting congregations did the proportions align closely: 39.6% of men and 42.3% of women.

Table 1 provides a univariate description of the person-day data overall and by gender, supporting the observation that women were generally summoned later and after more evidence was accumulated.

Table 1 here

Figure 7 presents a bivariate analysis. Here, the strongest correlation is between summons timing and the date of accusation (Pearson $r = -0.46$), indicating that individuals identified later were often summoned sooner after their discovery. Predictably, all aggravating factors are positively correlated, with the strongest relationship between “Number of accusations received” and “Acquaintance with Francis” ($r = 0.29$). The correlation between accusations received and the number of kin members accused is modest ($r = 0.16$), suggesting these variables, while related, possibly reflected distinct aspects of the evidence.

Figure 7 here

Multiple proportional-hazards tests (see Table 2) for our simplest Cox PH model (Model 1, Table 3), which includes no interactions with time, indicate issues with more than one variable, as well as with the global statistics (Grambsch and Therneau 1994; Hosmer et al. 2008). This includes borderline—but concerning—results for gender.

Tables 2 and 3 here

Models incorporating interactions between survival time and the problematic covariates reveal significant interactions (see Model 2, Table 3). Focusing specifically on gender, the

results suggest that the hazard for women is overall lower ($\beta = -2.738, p = 0.002$) but increases with (log) waiting time ($\beta = 0.914, p = 0.036$). The plots of scaled Schoenfeld residuals from Model 1 against survival time for the predictors with significant non-proportionality agree with the results from the PH tests (see Figure 8). For gender, the plot suggests that women experienced lower hazards of being summoned compared to men during the early waiting period, with the difference diminishing as the waiting time increased.

Figure 8 here

In Figure 9, this trend is illustrated using the hazard ratio metric, with exponentiated residuals smoothed via symmetric nearest-neighbour running-line smoothing (Hastie and Tibshirani 1990, 15–16; Sasieni 1995). The lower reference line represents the estimated HR for gender in Model 1 ($e^{-1.078} = 0.340$), which assumes the effect of gender is constant over time. The residuals clearly deviate from the reference line, indicating a diminishing of the difference between women and men.

Figure 9 here

In Table 3, we present two additional Cox PH models (Models 3 and 4) that incorporate frailty terms to account for unobserved variability. Model 3 includes a frailty term by individual. Model 4, on the other hand, incorporates a frailty term by day of trial, accounting for shared circumstances across individuals on the same day of trial.⁵ Both models yield results consistent with the simpler model, indicating that women have lower hazards initially, which increase over time. Notably, the model with day-level frailty show a greater improvement in fit compared to the model with individual-level frailty. As we shall see, this finding is also replicated in the parametric AFT models

We follow this analysis with the estimation of four log-normal accelerated failure time models (see Table 4). In Model 5, we consider only the fixed effects. In mixed-effects Models 6 and 7, we add random intercepts to account for individual variation and variation in days of trial, respectively. Finally, in Model 8, we use a crossed-effects structure, incorporating two main random effects, one for individuals and one for days of trial. In this final model, the random effect due to the day of trial applies to all individuals who are at risk of being summoned on that day.

Table 4 here

The coefficients for gender are consistently significant and positive across all four models, indicating that the time until summons was delayed for women compared to men. Most of the remaining variables display a negative and statistically significant results.⁶ The coefficients

⁵ Remember that our main measure is the number of days spent in the pool of suspects, not the actual day in the trial. The addition of this random term aims to account for unobserved variability within each actual day. These may be due to differing probabilities of summons derived from how the inquisitor scheduled the various phases of the trial (such as the initial investigation, the grace period, and interrogations) and potential expectations regarding the trial's duration.

⁶ In PH models, positive coefficients indicate an increased risk of experiencing the event, while negative coefficients suggest a decreased risk. In AFT models, however, a positive coefficient reflects a decelerating

for “Day of accusation,” “Number of accusations received,” “Number of accused kin,” and “Host of congregation(s)” suggest that individuals with more incriminating circumstances, as well as those reported later, were summoned sooner after being accused.

This aligns with earlier results from PH models, which showed that women had a lower hazard of being summoned than men at earlier waiting times. However, this effect was time-dependent, as women’s hazard gradually approached that of men over time. All four AFT models support this finding that, as men’s hazard declined after an initial peak, women’s hazard gradually increased. This is illustrated in Figure 10, which displays the hazard and survival functions estimated in Model 8 for average men and women (i.e., individuals with all covariates set to their observed mean values).

Figure 10 here

In terms of time ratios, women’s estimated time until summons is delayed by a factor of 2.4, meaning that the expected waiting time for women was approximately 140% longer than for men. Similar to the Cox PH models, Model 7, which includes random effects for the day of trial, demonstrates a greater (and significant) improvement over a model with fixed effects only relative to Model 6. As a result, including both individual and day-of-trial random effects in Model 8 does not lead to any significant improvement over Model 7.

Overall, all findings (PH and AFT alike) agree that women were generally at lower risk of being summoned; however, this risk increased over time, while the risk for men decreased after an initial spike. This suggests a clear preference and heightened urgency in interrogating men over women. This trend persists even after accounting for the timing of discovery, the number of accusations, the number of family members accused of heresy, and potential unobserved factors across individuals and days. Together, these results provide compelling evidence of gender bias in the inquisitor’s investigative work.

Discussion

Historiography on medieval heretical movements has long examined both the appeal these movements held for women and the roles women occupied within them (Abels and Harrison 1979; Arnold 2013; Green 2017; Koch 1962; McSheffrey 1995; Shahar 2001). Recently, the focus has expanded to explore how the Church’s persecution of these groups—and the inquisitors’ methods—have shaped modern historical interpretations (Vise 2018; Biller 2010; 2022). In light of existing discussions, this paper focused on the impact of inquisitor Albert of Castellario’s investigation into the Waldensian community in Giaveno during the winter of 1335, an inquiry that led to the involvement of over 250 individuals in just over a month.

Our study contributes to the literature by developing a framework that draws on the concepts of census production (Emigh, Riley, and Ahmed 2016; 2020), tie appropriation (Headworth 2019), and detective discretion (Corsianos 2003; Ericson 1981; Galligan 1990). Viewing the inquisitorial trial as an information-gathering exercise contingent upon the inquisitor’s

effect—meaning a delay in the event timing—whereas a negative coefficient indicates an accelerating effect, or a shorter time until the event occurs.

discretion in deciding which leads to pursue, we used quantitative tools—including social network analysis (Borgatti et al. 2022) and survival methods (Mills 2011; Singer and Willett 2003) — to examine the importance attributed to informants' gender and whether the inquisitor exhibited differing investigative attitudes toward men and women.

Our analyses yielded several findings. First, an examination of accusations reported by the 110 testifiers revealed no significant differences in the number of individuals that each gender reported, with both men and women being more likely to report men. While gender segregation may have characterized heretical networks (Biller 2010), it did not prevent substantial cross-gender reporting. Second, men's accusations appear to have had a greater impact on the trial overall, as indicated by the number of individuals reached in their absence. Yet this difference in influence seems amplified by the inquisitor's actions, such as a heightened scrutiny of certain men. Finally, survival analyses of the summonses showed that men were cited sooner and more promptly after being accused, even when ample numbers of suspects of both genders were available throughout the trial and controlling for aggravating circumstances.

A key question that arises is: what caused the observed gender bias? Several factors may have contributed, including a possible change in venue, legal provisions, or a decline in the role of women within the Waldensian movement. Vise (2018) found that in Bologna around 1300, men and women were interrogated in different venues, possibly influenced by contemporary conventions around confession, which bore similarities to inquisitorial depositions. Moore (2019) also noted that in Bologna during this period, inquisitors questioned men in the Dominican convent offices, while female witnesses were dealt with in the church or their homes. Similar practices were documented in civil trials in 14th-century Orvieto (Lansing 1997; 1998), Florence, and elsewhere (Laufenberg 2000; Feci 2016). Lansing (1997) suggests that such practices had doctrinal roots in religious beliefs about original sin, spread locally by mendicant friars. While we cannot completely rule out this possibility, we found no mention of venue differences in our records, suggesting that most questioning likely occurred in the castle of Giaveno (Merlo 1977: 128–29). Furthermore, given Giaveno's small size, it seems unlikely that venue differences alone could have caused a significant time gap.

Another possible reason is that inquisitors might have minimized the importance of female suspects or primarily used their testimonies to confirm information already gathered from men. However, while civil legal provisions often restricted women's access to certain governmental areas, they did not curtail their legal rights and obligations (Lansing 1997). Women were permitted to exercise legal rights, serve as witnesses, and initiate criminal proceedings in civil inquisitorial procedures, where their testimonies carried full weight (Blanshei 2010; Laufenberg 2000; Vitiello 2016). In our case, men and women received identical sets of questions, and their depositions were recorded with equal diligence, making it unlikely that women's testimonies were meant to complement male testimonies any more than the testimonies generally complemented each other. Moreover, the inquisitor relied on information from women at the outset of the trial, a practice consistent with other inquisitorial proceedings (Biller 2022). Our analysis also showed that men and women

provided similar numbers of names, suggesting no indication of the inquisitor sidestepping women due to comparatively lower information returns.

A third possible explanation is a decline in the role of women within the Waldensians. By the time of the Giaveno trial, it seems that women had largely lost their once-prominent role as wandering preachers. Any position they retained in the pastoral hierarchy was similar to that of nuns (Biller 2001). This decline mirrors the process described by Abels and Harrison (1979) regarding Cathar *perfectae*, who gradually became fewer until they nearly disappeared by the 14th century due to persecution. This context might have influenced Albert's decisions. However, a close look at the testimonies reveals that some women still held prominent roles in the movement, such as Marguerita Borsseta, reported by 12 suspects as their initiator into heresy (no man was reported by more than four individuals as their initiator into heresy).

While Albert of Castellario's procedural choices likely had no single cause, they were probably informed by the prevailing attitudes and mentalities of the time, which tended to reinforce gender asymmetries in legal and religious contexts (cf. Shahar 2001). Within the tight timeframe typically allotted to inquisitorial trials, a Dominican inquisitor might be expected to prioritize individuals holding a dominant social status. What appears certain, however, is that Albert managed the trial's timeline in a way that prioritized the interrogation of men with greater urgency, even when women seemed equally implicated.

Our study presents itself as an initial foray and, given that it focuses on a single case study, its findings should be interpreted cautiously. However, it is noteworthy that our results challenge the prevailing narrative in sociology and history, which identifies scapegoating—particularly of women and other vulnerable groups—as a central factor in religious persecution (Jensen 2007; Roper 2004; Erikson 2005). This narrative seems largely based on analyses of later persecutions, especially the witch trials of the Early Modern Period (Leeson and Russ 2018). One could argue that, in that context, persecuting vulnerable groups played a more instrumental role in symbolically restoring social order and demonstrating authority than it had done in the High and Late Middle Ages. A productive avenue for future research may involve exploring how gender biases in religious persecution evolved across different periods and regions, connecting these trends to ongoing political and economic developments, such as state formation and power disputes among elites.

Another line of inquiry our study opens concerns the potential for institutional changes within religious heterodox movements as an adaptation to sustained—and potentially gender-biased—persecution (I. R. Moore 2012). For instance, in the Waldensian movement, Biller (2001; 2010) has observed that women increasingly undertook the specialized task of preserving the history of the movement within their local communities. While such a gendered “division of labour” within these movements is often attributed to endogenous development or scriptural fundamentalism (McSheffrey 1995), some of these adaptations may respond to external pressures (Abels and Harrison 1979: 233–40), particularly gendered patterns of persecution. A productive avenue for future research could be to explore whether religious groups that have faced more gendered persecution in the past develop distinct, specialized roles for men and women over time as an adaptive strategy.

Moreover, the framework and methods presented here should not be viewed as limited to gender alone. For instance, a contentious question surrounding the Cathar movement pertains to whether its persecution was politically motivated or driven by power dynamics rather than purely religious motivations (Rehr 2019; Pegg 2001). Provided that information on social status or professions is available, our framework can readily be applied to examine whether inquisitors like Bernard de Caux and Jean de Saint-Pierre exhibited biased attitudes toward nobility and other powerful individuals during their investigations in 13th-century Languedoc.

As with any study, ours has its limitations. In terms of data, this case study lacks information on multiple dimensions that may have influenced the inquisitorial process. For example, records provide minimal details on subjects' occupations or possible patronage ties, and they seldom offer clues about individuals' ages beyond relative chronology in specific cases. The *fama* (reputation) of the witnesses—their perceived trustworthiness or importance in the inquisitor's view—is also unrecorded. It is important to emphasize, however, that while these factors may have played a decisive role in the civil criminal inquisition (Laufenberg 2000), they may not have been as significant in anti-heretical inquisitions, where inquisitors ideally sought information by whatever means available.

Additionally, external influences may have affected the inquisitor's approach. The abbot, who served as lord of Giaveno, and the castellan, both closely collaborated with the inquisitor, potentially shaping aspects of the trial process. Nonetheless, although Albert of Castellario's aides may have impacted his decision-making, little is known about these assistants' roles or their involvement in his inquiries (cf. J. Moore 2019). Finally, while it is unlikely that subjects without explicitly dated summonses were treated differently from those with exact dates, these dates were inferred for two-thirds of the individuals involved, which introduces another layer of uncertainty.

Regarding methodology, both social network analysis and survival analysis introduce certain limitations. Our network analyses, for instance, are based on the network reconstructed from testimonies in the inquisitorial process, which is shaped by the procedure itself. As a result, the network we analyze likely does not fully represent the heretical community in Giaveno or its true structural characteristics, as it may exclude connections unreported or undiscovered during interrogations. Survival analysis, on the other hand, requires a clear entry point into the risk set—for this study, the first mention of an individual to the inquisitor. However, this entry point led to the exclusion of 11 out of 90 cases (12.2%) where individuals were summoned before or on the same day as their initial mention. Despite these limitations, the observed effects remain robust, implying that additional, unaccounted-for factors are unlikely to alter our findings.

Inquisitors operated within a complex web of constraints stemming from legal norms (Blanshei 2010; Laufenberg 2000; Vitiello 2016), more or less established practices (Lansing 1997; J. Moore 2019; Vise 2018;), and the dynamics of their interactions with the individuals they scrutinized (Given 1997), not to mention the explicit or unstated goals of the organization they represented (Rehr 2019). Despite all this, previous studies have not adequately emphasized that they were men of their time, embodying (perhaps even

excessively) the underlying societal attitudes towards gender roles (cf. Shahar 2001). Such attitudes, in interaction with the actions of the persecuted communities, might have led to unintended outcomes in both the short and long run, ranging from incomplete or partial coverage of the heretical groups they aimed to eradicate to the gradual reshaping of such movements (Abels and Harrison 1979), potentially resulting in shifts in the roles and visibility women had within them.

Tables and Figures

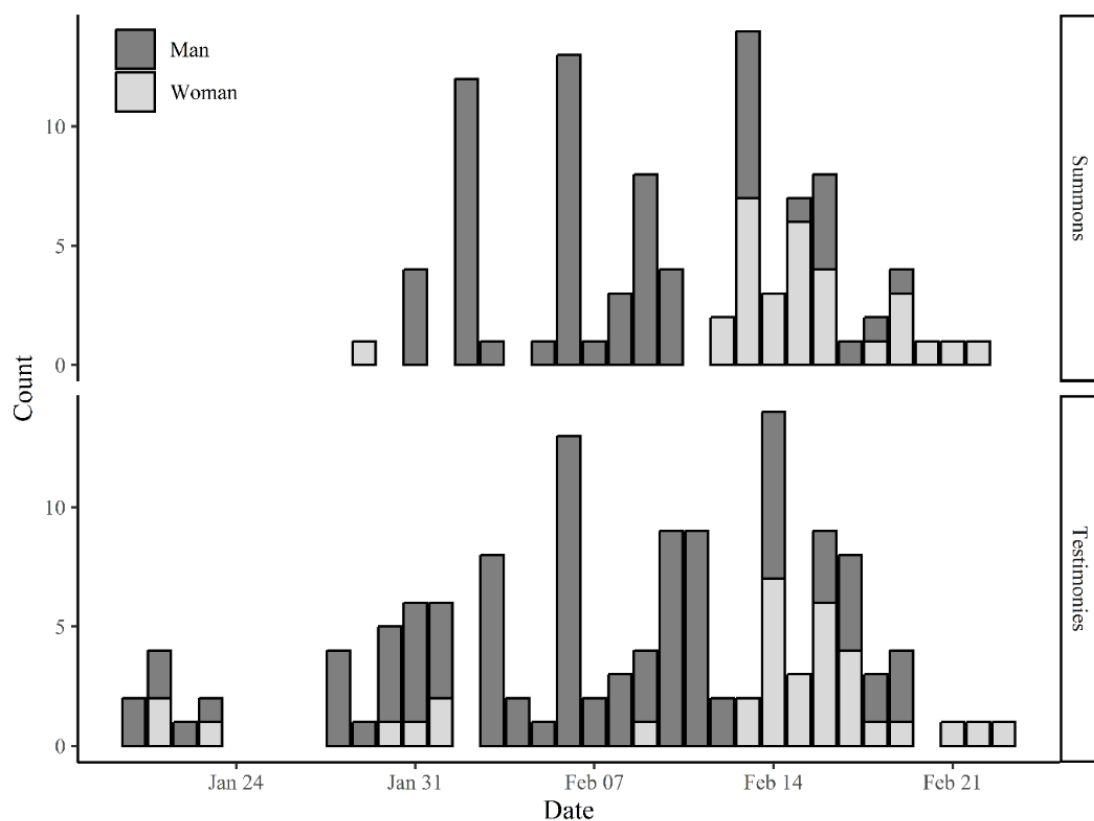


Figure 1. Number of individuals summoned and interviewed, categorized by gender and the date of the appearance.

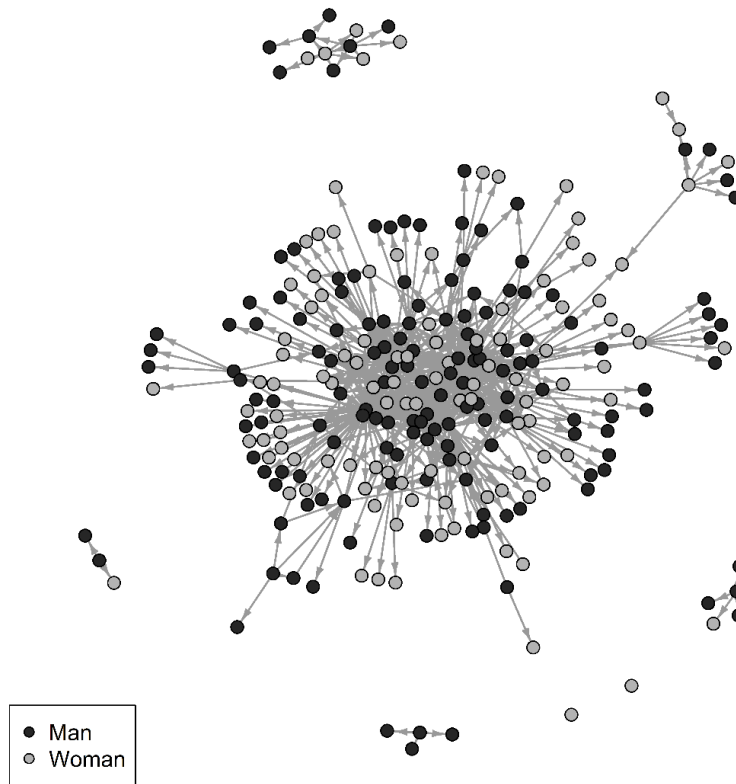


Figure 2. Network visualization of the accusations reported to the inquisitor. The graph consists of 267 nodes, representing individuals, and 747 ties, representing accusations. Each tie points from the accuser to the accused. Isolated nodes represent testers who neither reported anyone nor were accused by others.

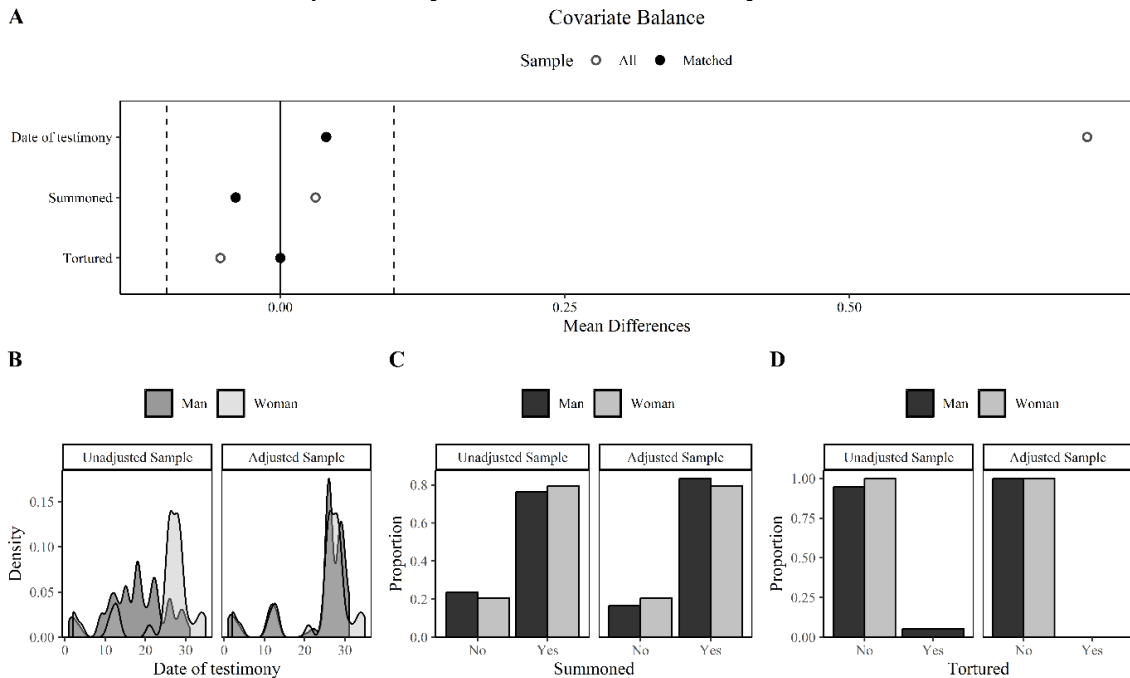


Figure 3. Panel A illustrates the balance across key variables (date of testimony, summoned status, and tortured status) when comparing all 34 women to the full group of 76 men (represented by empty white dots), and when comparing the 34 women to only the 48 matched men (represented by filled black dots). Values closer to zero indicate a better balance. Panels B, C, and D display the distribution of both genders across each dimension before matching (unadjusted sample) and after matching (adjusted sample).

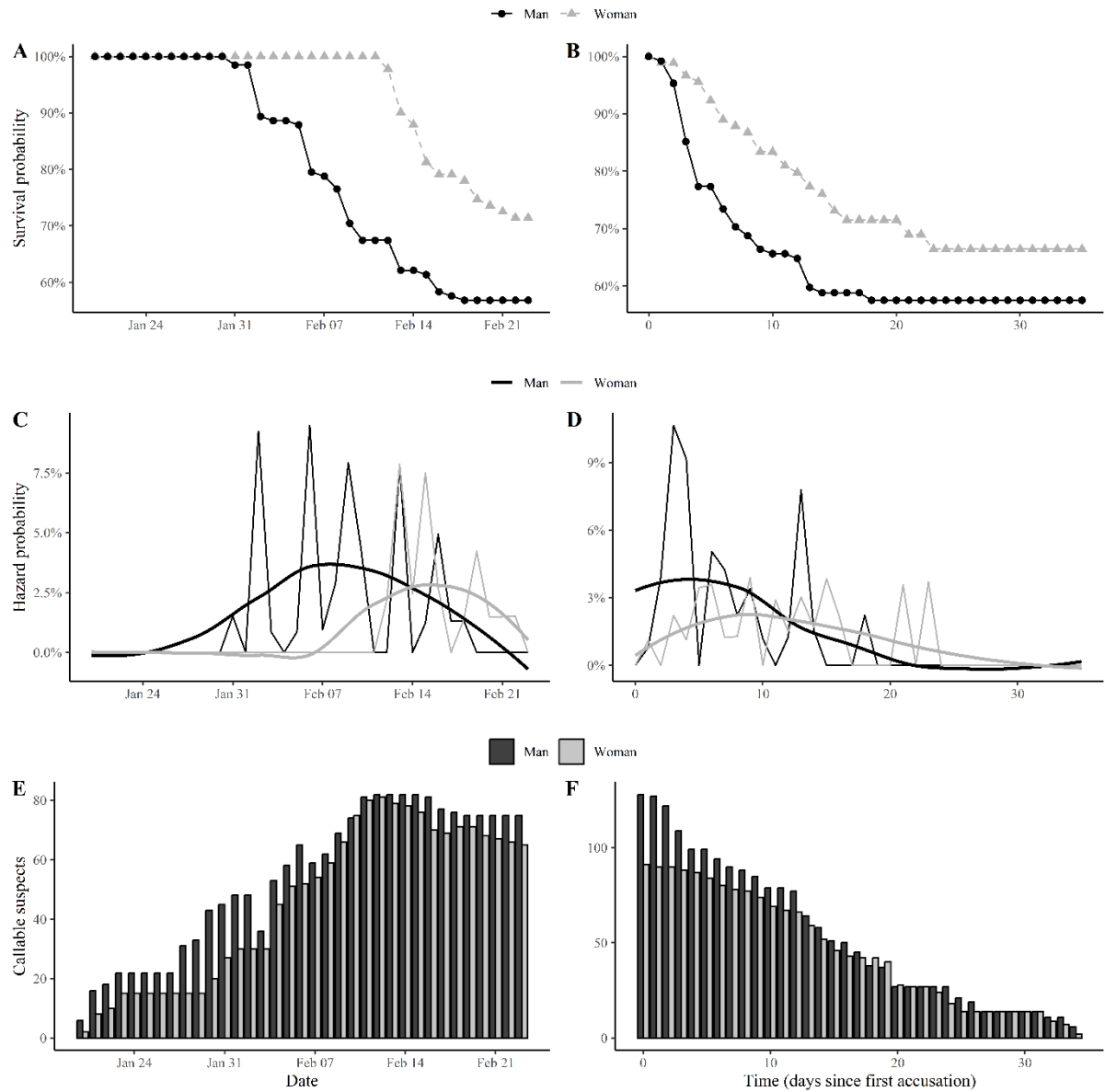


Figure 4. Panels A and B show the survival probabilities of men and women reported to the inquisitor, with Panel A using the actual dates of the reports and Panel B using the number of days elapsed since the person was first accused. Panels C and D display the hazards by day, with dented lines capturing the actual values, while smooth lines obtained through the LOESS algorithm showcase the overall temporal pattern. Panels E and F depict the risk sets of callable suspects available to the inquisitor—that is, the number of individuals reported but not yet called to provide their deposition—broken down by gender.

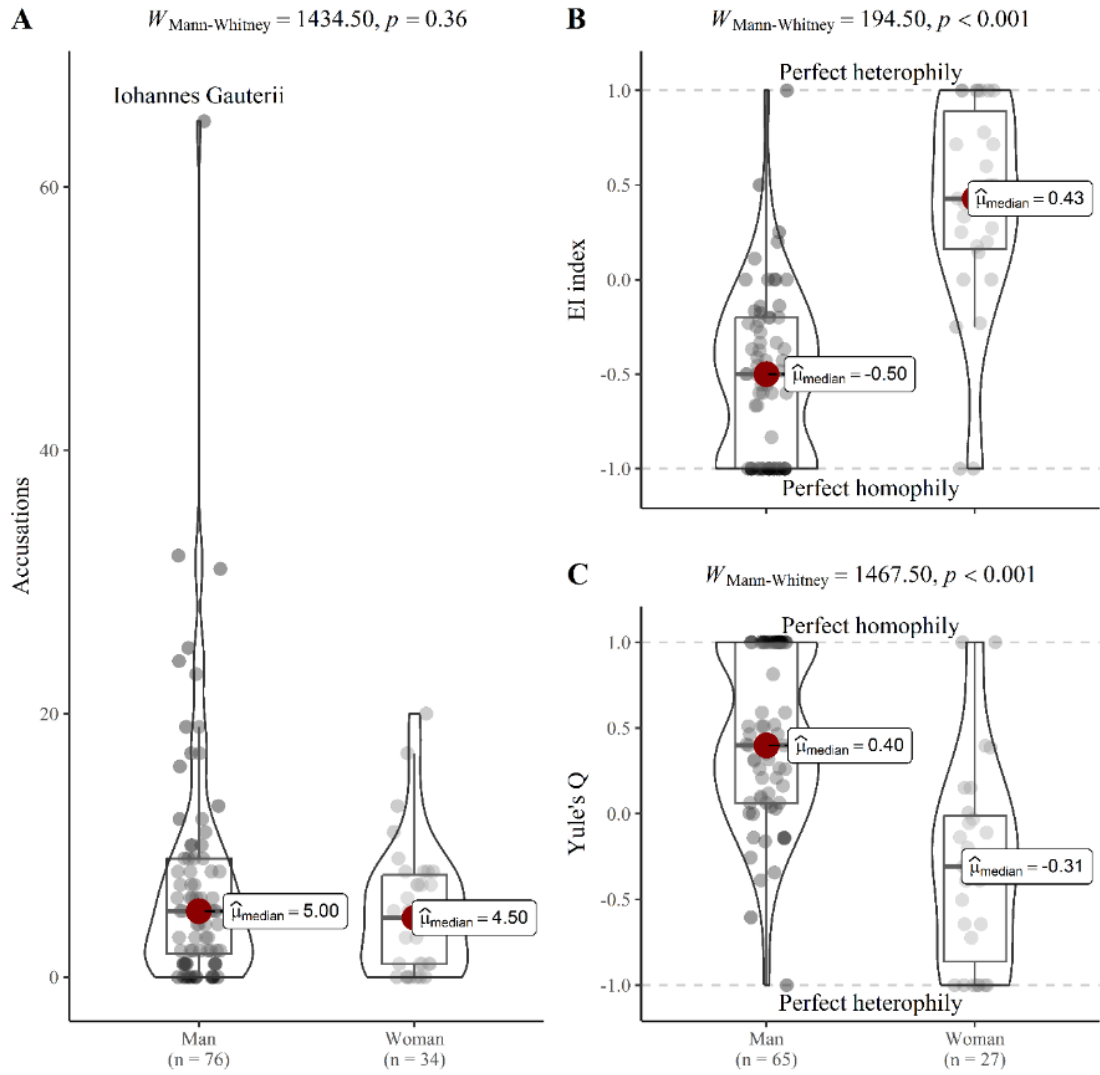


Figure 5. Panel A shows the distribution of accusations made, categorized by the gender of the testifiers. Panels B and C illustrate the distribution of individual homophily levels in the accusations, also differentiated by the testifiers' gender. Note that homophily levels could not be calculated for individuals who did not report anyone (11 men and 7 women), which explains the difference in sample sizes between Panel A and Panels B and C

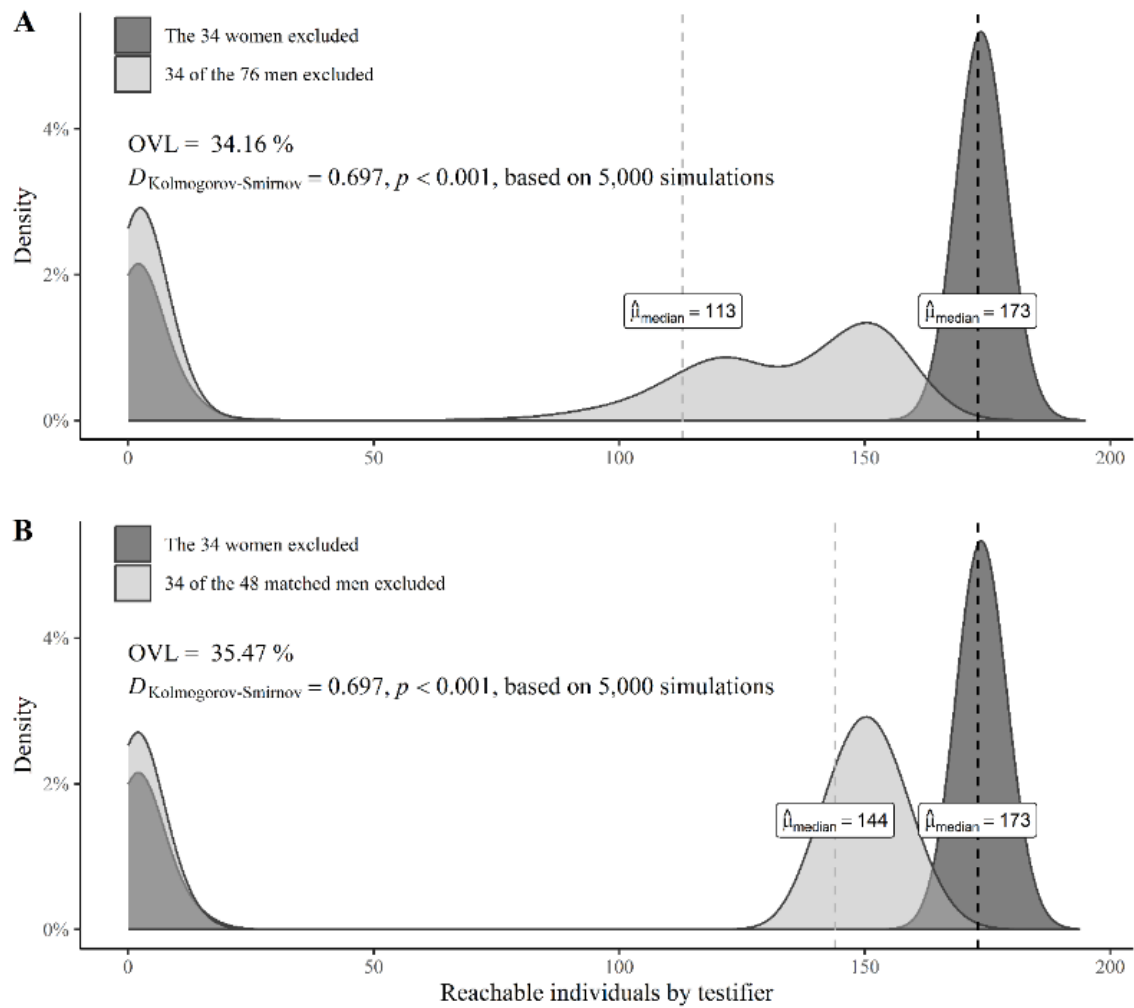
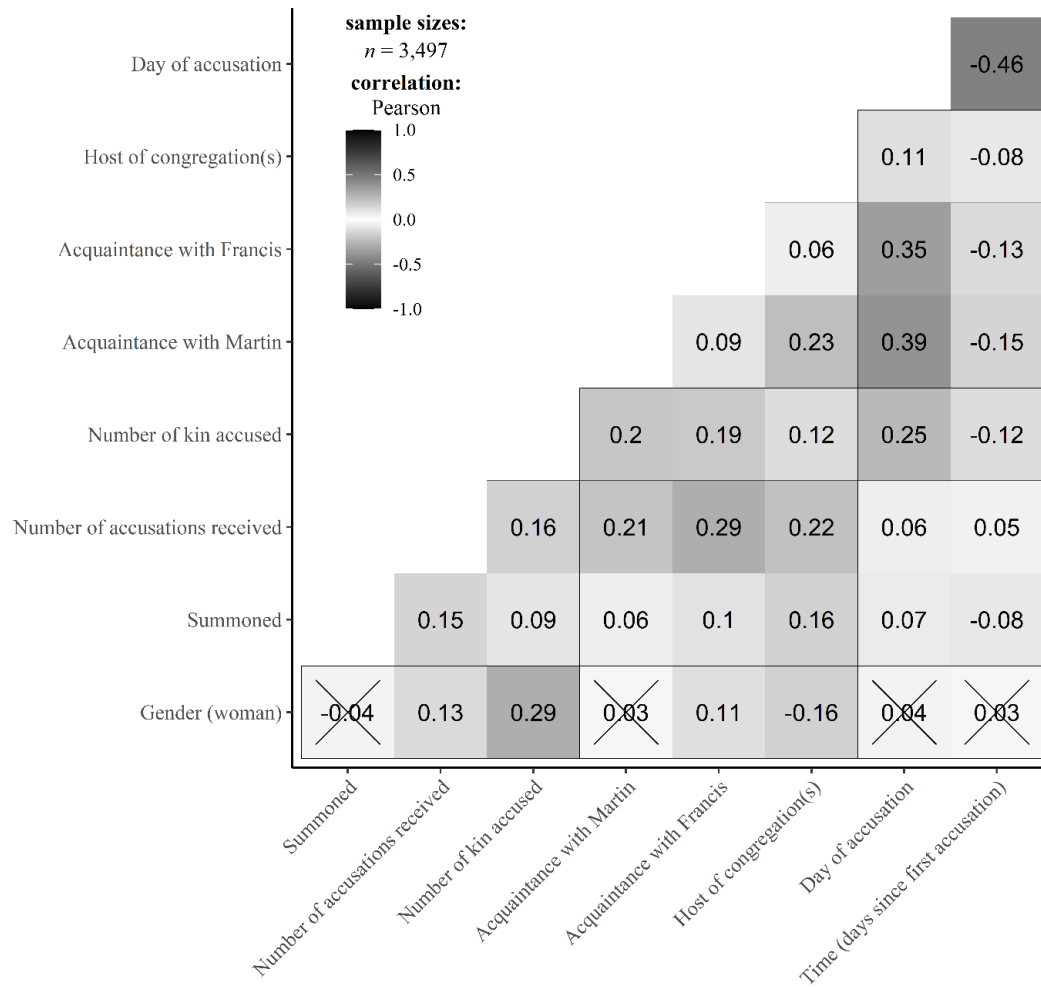


Figure 6. Panel A illustrates the number of individuals reachable by each testifier, comparing scenarios where the accusations reported by the 34 women are excluded (dark grey) against those where accusations from a sample of 34 men out of the 76 interviewed are excluded (light grey). Panel B repeats the same comparison, but in this case, the distribution shows the number of reachable individuals when sampling only from the 48 men who match with women in terms of deposition date, summoned status, and tortured status.



X = non-significant at $p < 0.05$ (Adjustment: Holm)

Figure 7. Pairwise Pearson correlation coefficient among the variables used in the analyses. Coefficients with p-values greater than 0.05 are crossed out.

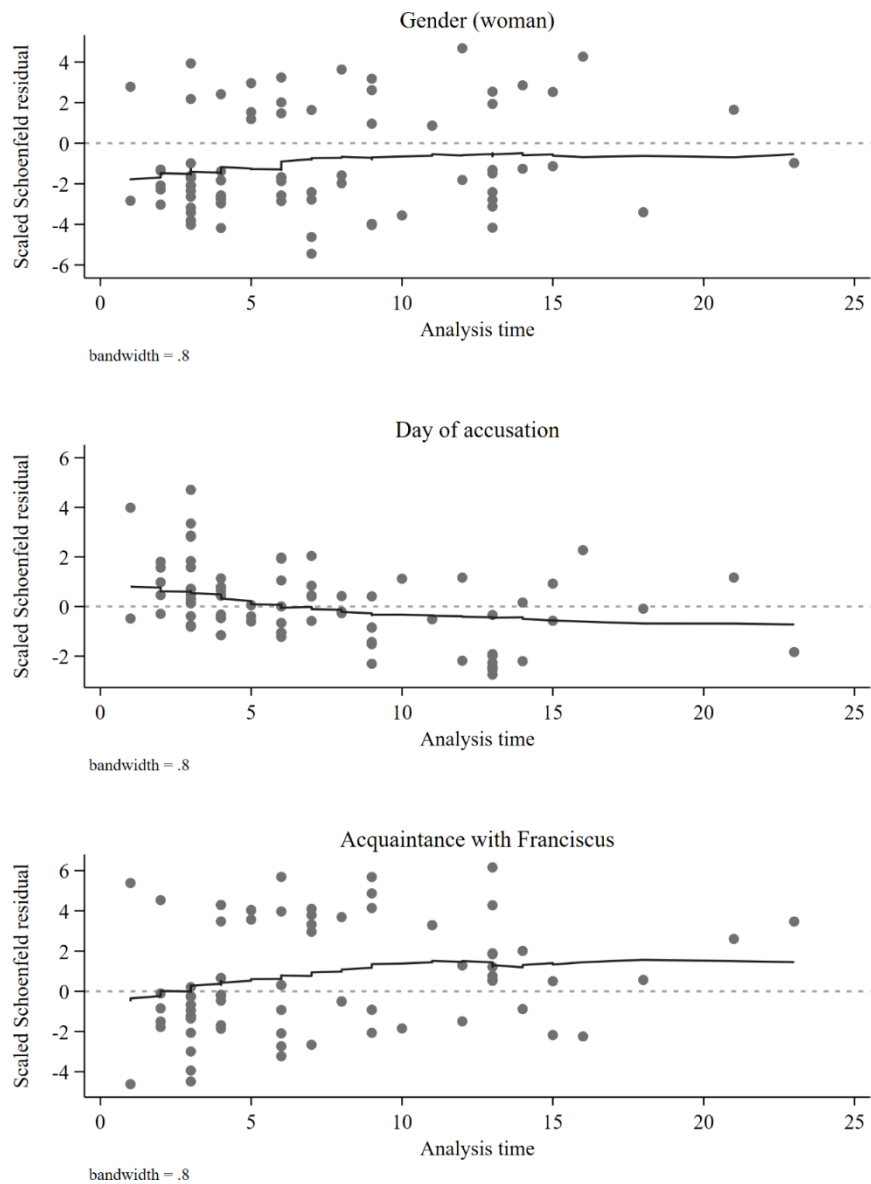


Figure 8. Plots of Scaled Schoenfeld residuals versus analysis time (days since first accusation) for the three problematic covariates from the simplest Cox PH model (Model 1).

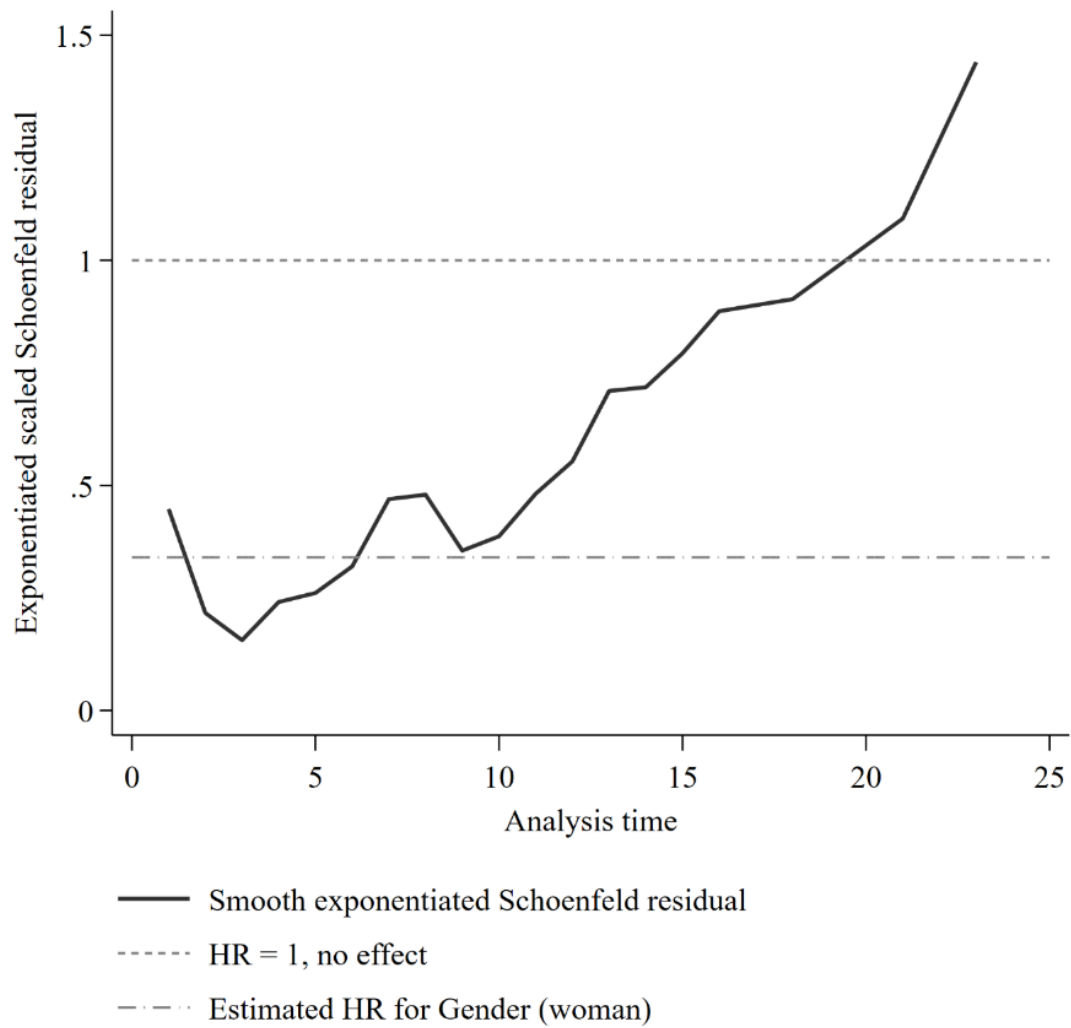


Figure 9. The plot of the smoothed, exponentiated Schoenfeld residuals from Model 1, for the covariate “Gender (woman),” in the hazard ratio metric. The effect of gender increases with time.

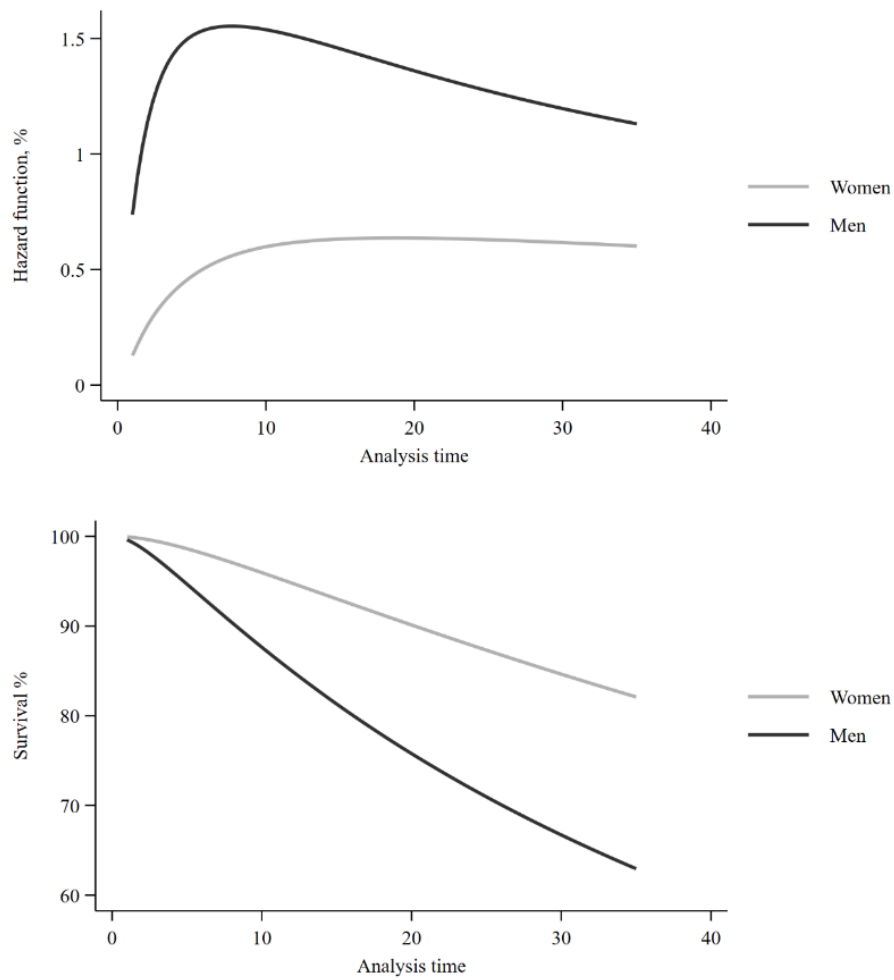


Figure 10. Lognormal hazard and survival functions for women and men as estimated in Model 8. Note the shift of the hazard function for women towards later times, corresponding to the higher μ parameter for women.

Table 1. Descriptive statistics for the variables in the analyses. Data presented in person-day format (N = 3,497).

	Man (N = 1,892)		Woman (N = 1,605)		Sample (N = 3,497)	
	Mean	SD	Mean	SD	Mean	SD
Time (days since first accusation)	11.1	8.2	11.6	8.1	11.3	8.1
Day of accusation	12.1	7.9	12.7	7.7	12.4	7.8
Number of accusations received	1.4	1.0	1.7	1.4	1.5	1.2
Number of kin accused	0.6	1.0	1.3	1.4	0.9	1.3
	N	%	N	%	N	%
Summoned	53	2.8	26	1.6	79	2.3
Acquaintance with Martin	360	19.0	341	21.2	701	20.0
Acquaintance with Francis	142	7.5	235	14.6	377	10.8
Host to congregation(s)	273	14.4	75	4.7	348	10.0

Table 2. Tests of proportional-hazards. Highlighted statistics indicate problematic covariates, with the *p* value close to or under 0.05.

		$g(t) = t$		$g(t) = \ln(t)$		$g(t) = \hat{S}_{KM}(t)$		$g(t) = rank(t)$	
Covariate	df	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>	χ^2	<i>p</i>
Gender (woman)	1	3.70	0.0545	3.11	0.0778	4.26	0.0390	3.72	0.0529
Day of accusation	1	14.68	0.0001	19.00	0.0000	18.22	0.0000	19.43	0.0000
Number of accusations received	1	0.02	0.8936	0.22	0.6424	0.40	0.5249	0.34	0.5585
Number of kin accused	1	0.02	0.8952	0.00	0.9637	0.00	0.9940	0.01	0.9329
Acquaintance with Martin	1	1.24	0.2651	2.24	0.1345	2.32	0.1279	2.52	0.1125
Acquaintance with Francis	1	4.51	0.0337	5.74	0.0166	6.98	0.0082	6.54	0.0105
Host to congregation(s)	1	1.23	0.2671	1.40	0.2360	0.93	0.3347	1.29	0.2563
Global	7	20.33	0.0049	23.74	0.0013	24.35	0.0010	24.96	0.0008

Table 3. Cox PH models. The estimates show coefficients rather than hazard ratios (i.e. e^{β}) for easier interpretation.

	Model 1	Model 2	Model 3	Model 4
Covariate	Est.	Est.	Est.	Est.
<i>Main effects</i>				
Gender (woman)	-1.078*** (0.275)	-2.738** (0.865)	-3.403*** (1.033)	-2.729** (0.871)
Day of accusation	0.051 (0.166)	2.066*** (0.520)	2.247*** (0.606)	2.015*** (0.587)
Number of accusations received	0.341*** (0.065)	0.323*** (0.069)	0.492*** (0.125)	0.320*** (0.069)
Number of kin accused	0.367*** (0.104)	0.368*** (0.105)	0.387** (0.135)	0.354*** (0.108)
Acquaintance with Martin	0.008 (0.266)	0.080 (0.265)	0.063 (0.339)	0.160 (0.271)
Acquaintance with Francis	0.659* (0.292)	-0.924 (0.863)	-0.652 (0.981)	-0.447 (0.955)
Host to congregation(s)	1.046*** (0.256)	1.066*** (0.260)	1.367*** (0.340)	1.023*** (0.266)
<i>Time-dependent effects</i>				
Gender (woman)		0.914* (0.437)	1.076* (0.516)	0.978* (0.440)
Day of accusation		-1.115*** (0.264)	-1.046*** (0.303)	-1.030*** (0.281)
Acquaintance with Francis		0.938* (0.469)	0.738 (0.532)	0.701 (0.501)
<i>Random effects</i>				
Θ			1.088 (0.708)	0.826 (0.361)
LR test ($\Theta = 0$) χ^2 (1)			3.32*	27.93***
N			219 _{person}	35 _{day}
Events	79	79	79	79
Observations	3,479	3,479	3,479	3,479

Note: Standard errors between parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Table 4. Log-normal AFT models for the time to summons.

	Model 5	Model 6	Model 7	Model 8
Covariate	Est.	Est.	Est.	Est.
Gender (woman)	1.369*** (0.358)	1.334*** (0.353)	0.839** (0.318)	0.892** (0.326)
Day of accusation	-0.649*** (0.186)	-0.595** (0.193)	-0.993*** (0.197)	-0.853*** (0.186)
Number of accusations received	-0.949** (0.276)	-0.699 (0.362)	-0.674** (0.233)	-0.502** (0.151)
Number of kin accused	-0.366** (0.135)	-0.354** (0.133)	-0.251* (0.118)	-0.246* (0.117)
Acquaintance with Martinus	0.362 (0.348)	0.270 (0.356)	0.158 (0.263)	0.051 (0.291)
Acquaintance with Franciscus	-0.215 (0.413)	-0.348 (0.413)	-0.391 (0.340)	-0.459 (0.330)
Host to congregation(s)	-1.338*** (0.381)	-1.352*** (0.368)	-1.069** (0.357)	-1.029** (0.315)
Constant, μ (location parameter)	3.617*** (0.243)	3.723*** (0.274)	4.244*** (0.403)	4.197*** (0.423)
σ (log scale parameter)	0.428*** (0.114)	0.116 (0.459)	0.087 (0.174)	-0.296 (0.321)
<i>Random effects</i>				
σ_{person}^2		1.195 (1.250)		0.890 (0.554)
σ_{day}^2			1.392 (0.644)	0.852 (0.924)
<i>LR tests over fixed-effects lognormal model</i>				
$\bar{\chi}^2(1)$		0.57	48.07***	
$\chi^2(2)$				48.93***
LR test, $\chi^2(1)$				0.86
AIC	649.04	650.47	602.97	604.11
N		219 _{person}	35 _{day}	219 _{person}
Events	79	79	79	79
Observations	3,497	3,497	3,497	3,497

Note: Standard errors between parentheses. * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

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