



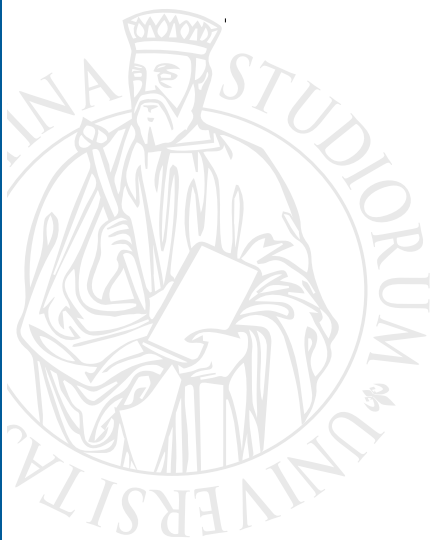
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**Likely to Be Single,
Likely to Search Online
The Negative Educational
Gradient in Online Dating in Italy**

Francesco Tata, Daniele Vignoli,
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Likely to Be Single, Likely to Search Online

The Negative Educational Gradient in Online Dating in Italy

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Abstract

The diffusion of digital technologies has transformed partnership dynamics. Online dating has become a common and socially accepted route for partner search and partnership formation. However, research on this phenomenon remains constrained by limited data availability. Examining the characteristics of online daters is essential for understanding their implications for the structure of the online dating market and processes of union formation. Building on a dual-selection perspective, this study investigates the stratification of online dating in Italy while also accounting for the stratification of singlehood. It aims to determine whether single online daters constitute a selected group in terms of socio-demographic factors such as education, age, and gender. The analysis draws on novel quota-controlled survey data ($N = 7,168$) that provide detailed information on online dating behaviour. It examines selection into online dating and singlehood, considering the use of multiple platforms and the frequency of online partner search. The findings emphasise a strong negative educational gradient in both singlehood and online dating. Individuals with low educational attainment are more likely to be single and to engage in online dating when single, across all age groups considered and with limited gender differences. This study offers one of the first accounts of the socio-demographic stratification of online dating in Italy. By connecting online dating and partnership formation perspectives, it provides evidence of a dual selection process – into singlehood and online partner search – profoundly shaped by education. It ultimately shows that online dating mirrors inequalities observed in offline dating markets.

1. Introduction

The digital revolution has substantially reshaped family dynamics. Alongside profound demographic and socio-cultural changes, the diffusion of digital technologies has altered how individuals meet, form partnerships, and maintain them (Sprecher 2009; Sharabi 2024). Online dating refers to the use of internet-based services to find a romantic partner and potentially initiate a relationship. This definition includes dating-oriented websites and smartphone applications (e.g. Match.com, Tinder), as well as generalist platforms (e.g. Facebook, Instagram) when used for partner search. Online dating has become a common and socially accepted practice (Vogels and McClain 2023), and an increasing share of couples now report having met online (Lampard 2020; Rosenfeld, Thomas, and Hausen 2019).

The present study investigates the socio-demographic stratification of individuals who engage in online dating in Italy, with the aim of assessing whether users of online dating services (ODSs) constitute a selected group in terms of characteristics such as education, age, and gender. The rise of online dating has attracted considerable scholarly attention, raising fundamental questions about how digital environments restructure opportunities to meet, select potential partners, and ultimately initiate romantic relationships. On the one hand, online dating has been interpreted as reflecting broader social values and behaviours in late-modern societies, consistent with processes such as the ‘commodification of intimate relationships’ and the ‘privatisation of dating’ (Bergström 2022). On the other hand, it has important theoretical and empirical implications for assortative mating and long-term union outcomes (Potarca 2025). Despite this growing interest, research in this field has long been constrained by the scarcity of suitable data. Recent advances have made couple-level information more widely available, enabling insights into the characteristics of partners who met online and entered a relationship (e.g. Potarca 2020). However, such data reflect the outcome of a selection process, as they capture only individuals for whom online partner search resulted in a (co-residential) relationship, while excluding the larger population of individuals who engage in online dating but do not succeed in forming a romantic partnership. As a result, comprehensive information

on online daters' socio-demographic characteristics and behaviours remains scarce and is often confined to convenience samples. In addition, much of the existing literature focuses on single types of ODSs or specific platforms, lacking an integrated assessment of online dating across its main spaces.

Understanding who uses ODSs is particularly important given the broader social implications of digitally mediated partnership dynamics. Studying the socio-demographic composition of online daters sheds light on the structure of the online dating market – that is, which individuals are more visible and therefore more likely to be encountered – as well as on the meeting opportunities provided by digital platforms. These structural features are closely linked to patterns of union formation, which is recognised as a key mechanism in the reproduction of social inequalities through the accumulation of partners' material and social resources. Accordingly, there is growing interest in whether online dating reinforces or mitigates assortative mating patterns typically observed in offline contexts (e.g. Potarca 2017). Together, these considerations underscore the need to assess whether online dating merely replicates offline dynamics or constitutes a distinct space with the potential to reshape partnership formation processes.

Despite clear evidence of the growing diffusion of ODS use in Italy (Arosio 2023; Eurispes 2023), the country has remained largely overlooked in the online dating literature, primarily due to the limited availability of data. The present study addresses this gap by drawing on novel, nationally representative data from the Age-It Family Demography Survey (Vignoli et al. 2026), which provides comprehensive and detailed information on online dating behaviour in Italy. The analysis focuses on cisgender heterosexual individuals aged 22–45 residing in Italy and investigates the socio-demographic stratification of online dating, distinguishing between different types of platforms and considering frequency of use. The empirical analysis addresses the following research questions: Is online dating stratified by education? If so, do educational differences intersect with demographic factors, particularly age and gender?

In answering these questions, this study offers three main contributions. First, by jointly analysing partnership status and online dating behaviour, it adopts a dual-selection perspective that emphasises how individuals may be selected into both singlehood and online dating along similar socio-demographic lines. Second, it advances understanding of ODSs as meeting environments by considering multiple types of dating platforms and assessing whether online dating reproduces, amplifies, or departs from offline patterns of stratification by education, age, and gender. Third, it provides among the first population-based evidence for Italy based on newly collected, quota-controlled survey data, allowing for a comprehensive assessment of who uses different types of ODSs, how frequently, and under which socio-demographic conditions.

The results point to systematic patterns of selection into online dating that are closely intertwined with patterns of selection into singlehood. In particular, a negative educational gradient is observed in both singlehood and online partner search, alongside a higher prevalence of ODS use among younger individuals, with modest gender differences. Taken together, these findings highlight a dual pattern of socio-demographic stratification and offer insights into the structure of the online dating market in Italy and its implications for meeting and mating opportunities.

2. Online Dating and the Internet as a Meeting Place

ODSs offer greater and more varied meeting opportunities compared to offline contexts. They provide access to larger pools of potential partners, filtering options based on various characteristics, multiple modes of synchronous and asynchronous communication, and, in some cases, algorithm-generated matches (Finkel et al. 2012). Such features are particularly advantageous for individuals in thin dating markets, who face limited offline opportunities for romantic encounters (Rosenfeld and Thomas 2012). Nevertheless, dating websites, smartphone applications, and generalist platforms differ substantially in their structures, tools, and usage practices. The rise of dating apps, for instance, has

shifted the emphasis toward visual content and introduced smartphone-specific features such as geolocation (Bergström 2022).

Rather than representing an exclusive alternative, online dating often complements offline partner search. Dating behaviour is only one facet of the broader transformations in romantic life brought about by digital technologies (Hertlein 2012; Qian and Hu 2024), with online and offline processes becoming increasingly intertwined (Lieberman and Schroeder 2020; Sharabi 2024). Adopting a perspective that emphasises the contextual influence of the online environment (Hertlein 2012; Qian and Hu 2024), the internet can be conceptualised as a ‘meeting place’ (Arosio 2023), comparable to traditional offline settings such as social networks and public or social venues.

The underlying assumption is that meeting settings provide non-random opportunities for encounters, facilitate interaction with specific social and demographic groups (Bozon and Héran 1989), thereby promoting contact among individuals who share setting-specific traits – for example, similar educational levels in schools and universities. Each setting thus structures the dating market in distinctive ways and is shaped by its own norms and expectations (Kalmijn 1998). Because meeting opportunities are unequally distributed and tend to foster homogamous interactions, most settings promote assortative mating – that is, union formation between similar individuals (Burley 1983). Educational assortative mating is especially consequential, as it may reinforce socioeconomic inequalities through the accumulation of material and social resources linked to higher education (Hirschl, Schwartz, and Boschetti 2024; Schwartz 2013; Schwartz and Mare 2005). While ODSs are expected to promote encounters among those most likely to access and use them (Sautter, Tippett, and Morgan 2010), evidence on who engages in online dating remains limited and inconsistent.

3. Singles and Online Daters as Selected Groups

Partnership formation is primarily shaped by partner availability, individual preferences, and broader contextual influences (Kalmijn 1998). The structure of the dating market determines the supply of

potential partners, whereas individual preferences pertain to the demand side, as they guide choices among available partners (Kalmijn and Flap 2001). The structure of the dating market depends on partnership status and spatial proximity – that is, on being single and on being exposed to particular meeting settings. Whereas spatial proximity in offline contexts does not necessarily imply active partner search (e.g. attending a university class), proximity within the online environment is more directly tied to intentional engagement with platforms designed for partner search.

Research on online dating can be analytically framed around two selection processes. First, individuals differ in their likelihood of being single – and thus available for partner search – because partnership chances vary across socio-demographic groups. Hence, the composition of the online daters population may reflect the stratification of singlehood (Sautter, Tippett, and Morgan 2010). In this case, singles within each socio-demographic group would have equal probabilities of using ODSs, and between-group differences in online dating would mirror differences in singlehood. Second, conditional on being single, individuals may differ in their propensity to engage in online partner search (Potarca 2021). In this case, even within the same socio-demographic group, singles would differ in their likelihood of using ODSs, indicating a specific selection into online dating. If both processes operate simultaneously, online daters constitute a population selected both into singlehood and into online dating. Ignoring the interdependence between selection into singlehood and selection into online dating in observational studies risks biasing analyses of online dating behaviour.

3.1 The Educational Stratification of Singlehood and Online Dating

Education is a key dimension of partner selection because it signals material resources, social capital, and lifestyle. Individuals may prefer either partners with similar educational levels (matching preferences) or partners whose education provides status and resources (competition preferences; Kalmijn 1994). Although higher education is generally valued (Blossfeld 2009; Mare 1991),

preferences vary according to gender norms and socioeconomic context (Kalmijn 2013; Oppenheimer 1994).

Historically, male dominance in tertiary education and the male-breadwinner family model created unbalanced sex ratios within educational strata, leading to widespread male hypogamy¹ and homogamy among the lower educated. Since the 1960s, educational expansion, the reversal of the gender gap in education, and the broader gender revolution have reshaped mating dynamics (Esping-Andersen and Billari 2015; Goldscheider, Bernhardt, and Lappegård 2015; Van Bavel 2012). Greater participation in higher education and in education-based meeting contexts has increased homogamy among tertiary-educated partners (Hirschl, Schwartz, and Boschetti 2024; Schwartz and Mare 2005). Meanwhile, the dual-earner model has partially replaced the male-breadwinner model amid rising gender egalitarianism and higher economic requirements for family formation and childbearing (Goldscheider, Bernhardt, and Lappegård 2015; Lappegård, Neyer, and Vignoli 2021; Van Wijk and Billari 2024).

Educational expansion among women has reversed the gender gap in tertiary education, with women now outnumbering men. This shift has produced a new ‘mating squeeze’, penalising tertiary-educated women and low-educated men, who face shortages of similarly educated partners (Corti and Scherer 2021; Van Bavel 2012, 2018). Although partner preferences continue to favour educational similarity and earning potential, structural imbalances limit their fulfilment and may lead to prolonged singlehood or preference adjustment (De Hauw, Grow, and Van Bavel 2017; Grow and Van Bavel 2015; Hitsch, Hortaçsu, and Ariely 2010; Skopek 2011; Sturm and Van Bavel 2024). Recent evidence indeed points to rising female hypogamy and declining male hypogamy (De Hauw, Grow, and Van Bavel 2017; Erat 2021; Esteve, García-Román, and Permanyer 2012; Esteve et al. 2016).

Mating preferences, socioeconomic attractiveness, and structural constraints – especially unbalanced sex ratios – thus generate unequal partnership opportunities across educational groups.

¹ Male hypogamy (and female hypergamy) refers to partnerships in which the man is more educated than the woman. Female hypogamy (and male hypergamy) refers to partnerships in which the woman is more educated than the man.

Highly educated individuals are generally advantaged: they satisfy both the matching preferences of similarly educated individuals and broader competition preferences, with tertiary-educated men further benefiting from their relative scarcity compared to tertiary-educated women. In contrast, lower-educated individuals depend more on preferences for homogamy and face greater exclusion from higher-educated partners, with low-educated men being particularly disadvantaged due to their numerical overrepresentation.

Unequal partnership chances shape the likelihood of being single – and thus of being a potential ODS user – but singlehood does not automatically translate into online dating. Early accounts predicted a positive educational gradient in ODS use, namely a greater proportion of highly educated individuals among online daters. This perspective rested on persistent disparities in internet access, computer literacy, and digital skills, which were expected to advantage individuals from higher socioeconomic groups (DiMaggio et al. 2001; Sautter, Tippett, and Morgan 2010). However, as internet access and digital competencies have become widespread, the assumption of a strong educational advantage in ODS use has lost empirical plausibility (Bergström 2022). An alternative perspective emphasises the functional usefulness of online dating for individuals facing constraints in offline partner search. In this view, online dating is particularly beneficial for those who encounter difficulties in conventional settings, whether due to structurally thin dating markets (Rosenfeld and Thomas 2012) or psychosocial vulnerabilities (Toma 2022). Access to larger pools of potential partners and multiple modes of interaction provided by ODSs becomes especially salient in this context (Finkel et al. 2012). To the extent that singles with lower educational attainment face less favourable meeting and mating opportunities offline, this perspective leads to the expectation of a negative educational gradient in online dating. These contrasting expectations reflect a broader debate in family demography. The Second Demographic Transition (SDT) framework conceptualises innovative partnership behaviours as diffusion processes led by highly educated groups (Van de Kaa 1987; Lesthaeghe 2020). By contrast, the Pattern of Disadvantage (POD) perspective links behavioural change to structural and socioeconomic constraints, interpreting emerging family

patterns as adaptive responses to limited opportunities (Perelli-Harris et al. 2010; Perelli-Harris and Gerber 2011).

Empirical evidence on educational inequalities in online dating is ambiguous. Some studies report higher levels of ODS use among the highly educated (Bergström 2022; Smith and Duggan 2013; Vogels and McClain 2023), while others find no association between education and online dating engagement (Jiménez-Muro, Ramos-Villagrasa, and Castro 2025; Valkenburg and Peter 2007). Moreover, Sautter, Tippett, and Morgan (2010) report a substantially higher – though non-significant – probability of ODS use among low-educated singles once singlehood and internet use are accounted for. Whether online dating is educationally stratified, and how this relates to the stratification of singlehood, remains an open question.

3.2 Age and Educational Trends in Singlehood and Online Dating

Age is a central axis structuring both singlehood and online dating. Young adults are more likely not only to be single but also to use ODSs for partner search than older adults (Bergström 2016, 2022; Jiménez-Muro, Ramos-Villagrasa, and Castro 2025; Smith and Duggan 2013; Vogels and McClain 2023), although engagement in online dating remains substantial among individuals in their 30s and 40s (Smith and Duggan 2013; Valkenburg and Peter 2007). These patterns reflect intertwined age and cohort dynamics that make online dating motivations and practices differ across the life course (Bergström 2022).

Singlehood is disproportionately concentrated in early adulthood, particularly as long-term union formation is increasingly postponed (Bellani, Esping-Andersen, and Nedoluzhko 2017; Billari and Liefbroer 2010; van den Berg and Verbakel 2022). Among younger cohorts, this life stage is characterised by sexual and romantic exploration, with diverse relationship forms and a higher number of partners (England et al. 2008; Lyons et al. 2013; Manning et al. 2005), patterns consistently observed across social strata (Armstrong et al. 2010; Hamilton and Armstrong 2009). In this context, ODSs have become central arenas of socialisation, supported by young cohorts' digital familiarity

and the social normalisation of digitally mediated partner search. Younger individuals may thus be selected into online dating both because they are more often single and because they hold more favourable attitudes and norms toward online partner search. When individuals age, exploration gives way to a greater propensity to settle down and increased normative pressure to do so (Bergström et al. 2019; Grow and Van Bavel 2015), while offline meeting opportunities narrow. As social networks contract and age-specific norms reshape social life (Litwin and Stoeckel 2013), singles in their 30s and 40s experience increasingly limited opportunities to encounter potential partners offline, especially after union dissolution. ODSs then shift from supplementing abundant offline encounters in youth to compensating for their contraction in midlife (Rosenfeld and Thomas 2012; Bergström 2022).

The association between education and ODS use likely varies over the life course and across cohorts. In early adulthood, singlehood, dense peer networks, and widespread digital familiarity (Lyons et al. 2013) arguably limit educational differences in online dating. At later ages, as meeting opportunities increasingly depend on occupational settings and socially stratified networks (Litwin and Stoeckel 2013), educational differences may widen. While higher-educated individuals tend to maintain broader networks, lower-educated individuals face greater risks of network contraction, economic instability, and constrained local mating markets (Bergström 2022). As singlehood becomes less normative in midlife, ODSs may play a stronger compensatory role for those with restricted offline opportunities, potentially amplifying educational differentials in online dating engagement.

3.3 Gender and Educational Differences in Singlehood and Online Dating

Gender differences are among the most robust findings in the fragmented literature on online dating. Previous studies consistently report an overrepresentation of men among ODS users, although women's engagement in online dating has increased over time (Blanc 2024; Bergström 2016; Castro and Barrada 2020; Castro et al. 2020; Smith and Duggan 2013; Valkenburg and Peter 2007; Vogels and McClain 2023). Beyond participation rates, online dating is often described as a gendered arena

in which men and women differ in motivations, preferences, and behaviours (Abramova et al. 2016; Ranzini and Lutz 2017).

Gender differences in ODS use are intertwined with broader stratification in singlehood. The educational disadvantage in the dating market is particularly pronounced for men, who are overrepresented in lower educational strata and face stronger competition. Women may also be penalised, though in different ways: low-educated women face lower perceived attractiveness, whereas tertiary-educated women face a shortage of similarly educated men. Online dating may thus function as a compensatory tool, especially for lower-educated men, potentially producing wider educational gaps among male than among female users. Gender gaps are also structured by age and life-course dynamics. Men form long-term unions later than women and are more often single at younger ages, creating age-specific imbalances (Bergström 2022). Preferences reinforce this pattern: young women tend to prefer older partners, which may temporarily disadvantage younger men (Bozon 1991). Later in life, these dynamics tend to reverse. Following separation, women's partner choices are more constrained by parenting responsibilities, whereas older men more often seek younger partners, narrowing repartnering opportunities for older women (Abramova et al. 2016; Bergström 2022).

Overall, educational inequalities, age norms, and gendered preferences shape availability and attractiveness on dating platforms. Taken together, these mechanisms suggest that online dating tends to reproduce, rather than offset, the socio-demographic stratification of singlehood.

4. Italy as a Case Study

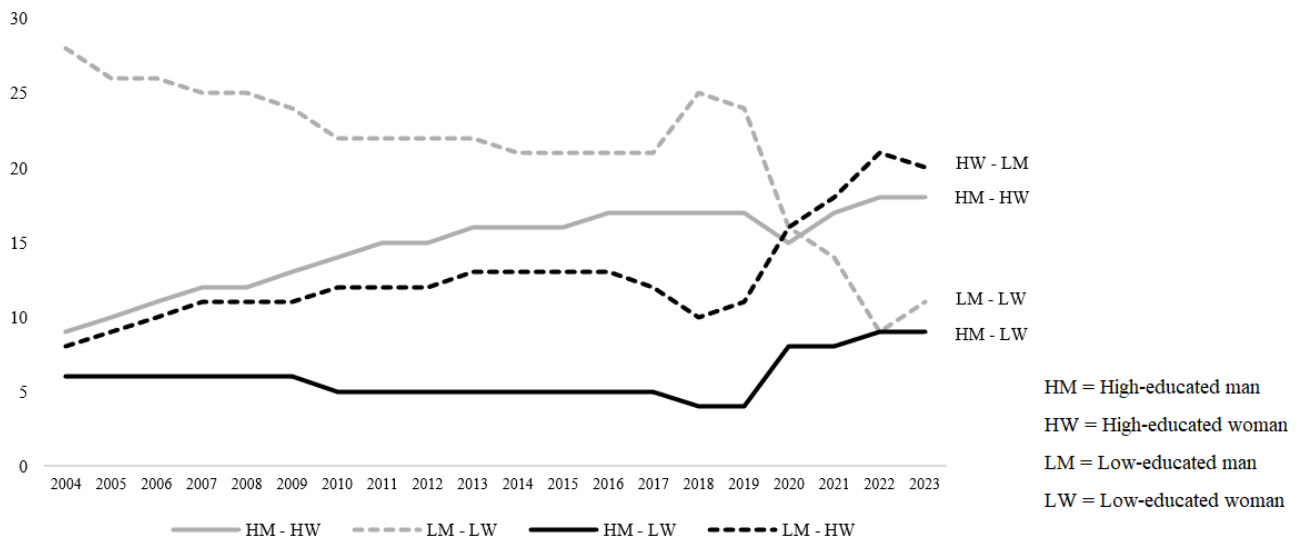
Research on online dating in Italy remains particularly limited. Owing to its historically high levels of traditionalism and religiosity, as well as strong family ties, Italy has often been portrayed as an exception to the demographic patterns described by the SDT theory, or at least as a case of delayed social and demographic change (De Rose, Racioppi, and Zanatta 2008). More recent evidence,

however, suggests that Italy is increasingly following the trajectories highlighted by the SDT framework, particularly regarding the postponement of union formation and the growing prevalence of non-traditional family arrangements, including non-marital cohabitation and living-apart-together (LAT) relationships (Aasve et al. 2024; Billari et al. 2008; Guetto et al. 2016). Consistent with these developments, the limited body of research on online dating in Italy points to its increasing diffusion, with a rising share of both online daters and couples who report having met through ODSs (Arosio 2023; Eurispes 2023). The diffusion of online partner search is further facilitated by widespread Internet access among Italian households, despite persistent territorial disparities favouring more developed areas (Istat 2024b).

Alongside these demographic changes, educational trends in Italy provide clear evidence of a reversed gender gap in education. Whereas tertiary-educated women once constituted a minority, they now outnumber their male counterparts (Istat 2024a), and a growing share of marriages involves highly educated partners. Over the past two decades, the incidence of female-hypogamous marriages has increased markedly, while male-hypogamous marriages have remained relatively stable (Figure 1). Educational homogamy among tertiary-educated individuals has risen substantially (De Rose and Fraboni 2015), whereas homogamy among the low-educated has declined (Figure 1). However, it remains unclear whether these trends extend to non-marital partnerships.

Despite the persistence of several traditional features, gender equality and egalitarian attitudes have increased notably in recent years. At the same time, economic hardship remains widespread, particularly among individuals with lower levels of education (Istat 2024a). Previous research shows that economic uncertainty negatively affects union formation (Alderotti, De Rose, and Tocchioni 2024), potentially disadvantaging less-educated individuals in the dating market. In this context, tertiary-educated individuals – particularly women – may be better positioned in partner search due to the combined effects of rising gender egalitarianism and persistent economic insecurity.

Figure 1 – Prevalence of selected educational arrangements in heterosexual marriages and civil unions in Italy, 2004-2023 (percentages)



Source: Authors' elaboration based on Istat full-population data (2004-2023).

5. Research Hypotheses

Education is expected to shape not only online dating engagement but also partnership chances via mating preferences, socioeconomic attractiveness, and unbalanced sex ratios within educational strata. Whereas early accounts predicted that online dating would be driven by highly educated individuals, more recent perspectives emphasise how digital platforms help overcome difficulties in conventional partner-seeking contexts. Educational expansion, rising gender egalitarianism, and increasing economic requirements for family formation have constrained the meeting and mating prospects of low-educated singles, who may therefore regard online dating as an effective compensatory strategy. Accordingly, we expect that singles with low educational attainment are the most likely to engage in online dating (H1).

Age further structures ODS use through life-course dynamics and cohort-specific norms of digital behaviour. For younger cohorts, who have socialised into adulthood in an already digitalised context, online dating has become normalised and reflects a more exploratory and fluid approach to partner search. Therefore, we hypothesise that younger singles are more likely to engage in online dating than older singles (H2a). At older ages, when offline meeting opportunities contract and

pressures towards (re)partnering increase, the disadvantage of low-educated singles may become particularly salient. We thus expect educational differences in ODS use to widen at older ages (H2b).

Finally, gendered partnership trajectories and dating market dynamics suggest higher engagement in online partner search among men, as consistently reported in previous research. We therefore expect that men are more likely to engage in online dating than women (H3a). The intersection of gender and education may further stratify ODS use. Low-educated men are expected to face the greatest disadvantage in the dating market, being penalised by both reduced social attractiveness and marked structural constraints. Hence, we posit that educational differences in online dating engagement are wider among men than among women (H3b).

6. Data, Variables, and Methods

The analysis draws on data from the Age-It Family Demography Survey, a nationally representative, quota-controlled survey of 9,004 cisgender, heterosexual individuals aged 18-45 residing in Italy (for detailed information on the survey design, sampling strategy, questionnaire content, and data access procedures, see Vignoli et al. 2026). The survey was conducted in 2025 through Computer-Assisted Personal Interviews (CAPI, 78%), Computer-Assisted Telephone Interviews (CATI, 11%), and Computer-Assisted Web Interviews (CAWI, 11%). Sampling followed a stratified design, with quotas based on the intersection of sex, age group, educational attainment, citizenship, macro-region (NUTS-1), and municipality size. The questionnaire covered a wide range of topics, including online dating behaviour, socio-demographic characteristics, parental background, and prior co-residential partnerships.

For the purposes of this study, we consider individuals aged 22–45 ($N = 7,720$). Respondents younger than 22 are excluded as they are not fully comparable in terms of educational attainment, being unable to hold university degrees due to minimum age requirements. Additionally, cases with indeterminate partnership status at the time of ODS use, as well as missing or invalid responses, are

systematically removed, resulting in a 7.2% reduction in the original sample size. The final analytical sample consists of 7,168 individuals.

6.1 Measures

Online dating is measured using the following question: “In the past twelve months, how often have you used the following tools to look for a potential partner or to meet new people for romantic or relationship purposes?” Respondents report separately on dating websites, dating smartphone apps, and generalist platforms. This measure focuses on partner-search behaviour and situates online dating within a clearly defined time frame, referring to current rather than lifetime ODS use. Response options (‘Never’, ‘Sometimes’, ‘Often’, ‘Very often’) additionally capture frequency of use.

Respondents are grouped into three categories. First, those currently in a partnership, including marriages, non-marital cohabitations, and LAT arrangements. Second, singles who have not engaged in online dating in the previous year (i.e., those who answered ‘Never’ to all three ODS items). Third, singles who have used at least one ODS for partner search in the previous year at any frequency. This categorisation enables the identification of patterns of selection into online dating while simultaneously accounting for selection into singlehood. Online daters are further classified according to the highest frequency reported across the three ODS types: occasional users report having used at least one ODS ‘sometimes’ but never more frequently; regular users report having used at least one ODS ‘often’ but never more frequently; frequent users report having used at least one ODS ‘very often’.

Educational attainment constitutes the primary explanatory variable. Respondents are categorised as having low (lower-secondary qualifications or below, ISCED 2011 levels 0–2), intermediate (upper-secondary and pre-tertiary qualifications, ISCED 2011 levels 3–4), or high (tertiary qualifications, ISCED 2011 levels 5–8) educational attainment. Age group (22–27, 28–33, 34–39, 40–45) and gender (male, female) are also key explanatory variables, with particular attention to interactions between these three factors.

Control variables account for socio-demographic and contextual factors related to partnership status and ODS use. Partnership history captures prior relationship experience through a binary indicator of whether respondents have ever been married or cohabited. Parental education – coded as whether at least one parent holds a tertiary qualification – serves as an indirect proxy for social capital and socialisation to non-traditional attitudes and behaviours (Mooyaart and Liefbroer 2016). Country of birth distinguishes between respondents born in Italy and those born abroad, reflecting possible cultural differences in relationship behaviour and digital engagement, as well as differences in meeting and mating opportunities. Region of residence (NUTS-2) and size of residential area account for local-level variation in meeting and mating opportunities, particularly between urban and rural areas. We also include the interview mode (CAPI, CATI, CAWI) among the control variables.

6.2 Analytical Design

To test the hypotheses, we jointly assess the likelihood of being single and of using ODSs when single. In addition, we extend the analysis by investigating the stratification of online partner search across different types of ODSs and by considering the frequency of ODS use.

We first examine the likelihood of being a single online dater – regardless of the platform used and the frequency of use – compared to being in a partnership or being single without using ODSs. Selection into online dating is thus assessed jointly with selection into singlehood through multinomial logistic regression ($N = 7,168$). Subsequently, we examine selection into online dating with regard to each ODS type separately, estimating three distinct multinomial logistic regression models for dating websites ($N = 7,156$), dating apps ($N = 7,159$), and generalist platforms ($N = 7,160$). While the category of partnered individuals remains unchanged, the categories of users and non-users refer to each specific type of ODS². Finally, we examine the frequency of online partner search using

² The differences in sample size across models are due to variation in item non-response. In the general model, respondents were classified as online daters if they provided a valid answer to at least one ODS item. In the ODS-specific models, inclusion required a valid response to the corresponding item for that specific ODS type.

a multinomial logistic regression model with a five-category outcome – partnered, single non-user, occasional user, regular user, and frequent user ($N = 7,168$).

We note that the educational categories in our specification combine individuals who have completed their education with those who are still enrolled in higher education. These groups are likely subject to distinct social environments and meeting opportunity structures (e.g. workplace or university), which may systematically affect the propensity to engage in online partner search. Although students represent only 7% of the overall sample, their distinct social context could introduce heterogeneity into the estimates. To address this concern, we estimate an additional model including occupational status (employed, not in employment, student) as a control variable. Moreover, given that such heterogeneity is disproportionately concentrated among younger respondents – 25% of whom are students – we re-estimate the main model on a restricted subsample of individuals aged 28–45, for whom educational trajectories are more likely to be completed. As a further robustness check, we re-estimate the main model on the subsample of single individuals, thereby eliminating potential confounding due to partnership status. The full results of all models are available in the supplementary material.

7. Results

7.1 Descriptive Statistics

In the final analytical sample, 63% of respondents are currently partnered, 14% are single and have not used ODSs in the previous twelve months, and 23% are single and have engaged in online dating. Among singles, 61% are classified as online daters – i.e., having used at least one type of ODS in the previous twelve months – confirming the widespread diffusion of online dating in Italy. More specifically, 23% report having used dating websites, 31% dating smartphone apps, and 58% generalist platforms for partner search, underscoring the importance of platforms not primarily designed for partner search within the broader online dating landscape.

Table 1 presents the distribution of respondents in the overall sample and within each category by gender, age group, and educational level, revealing substantial variation in socio-demographic composition. Specifically, men, young adults, and lower-educated individuals are overrepresented among online daters. The group of online daters also exhibits the widest educational gap, with a large difference between the proportions of low-educated and tertiary-educated individuals. The socio-demographic profile of ODS users differs markedly not only from that of partnered individuals but also from that of singles who do not engage in online partner search. This indicates that the stratification of online dating partly mirrors that of singlehood – for example, in the greater prevalence of younger age and lower educational attainment – but is also shaped by distinct socio-demographic patterns.

Table 1 – Sample proportions by gender, age, and education (column percentages)

	Sample	Partnered	Single not online daters	Single online daters
Gender				
Men	50	49	49	55
Women	50	51	51	45
Age				
22-27	22	15	32	34
28-33	22	21	21	27
34-39	25	28	22	17
40-45	31	36	25	22
Education				
Lower-secondary or below	34	30	35	42
Upper-secondary	43	44	43	40
Tertiary	23	26	22	18
N (unweighted)	7,168	4,502	1,029	1,637

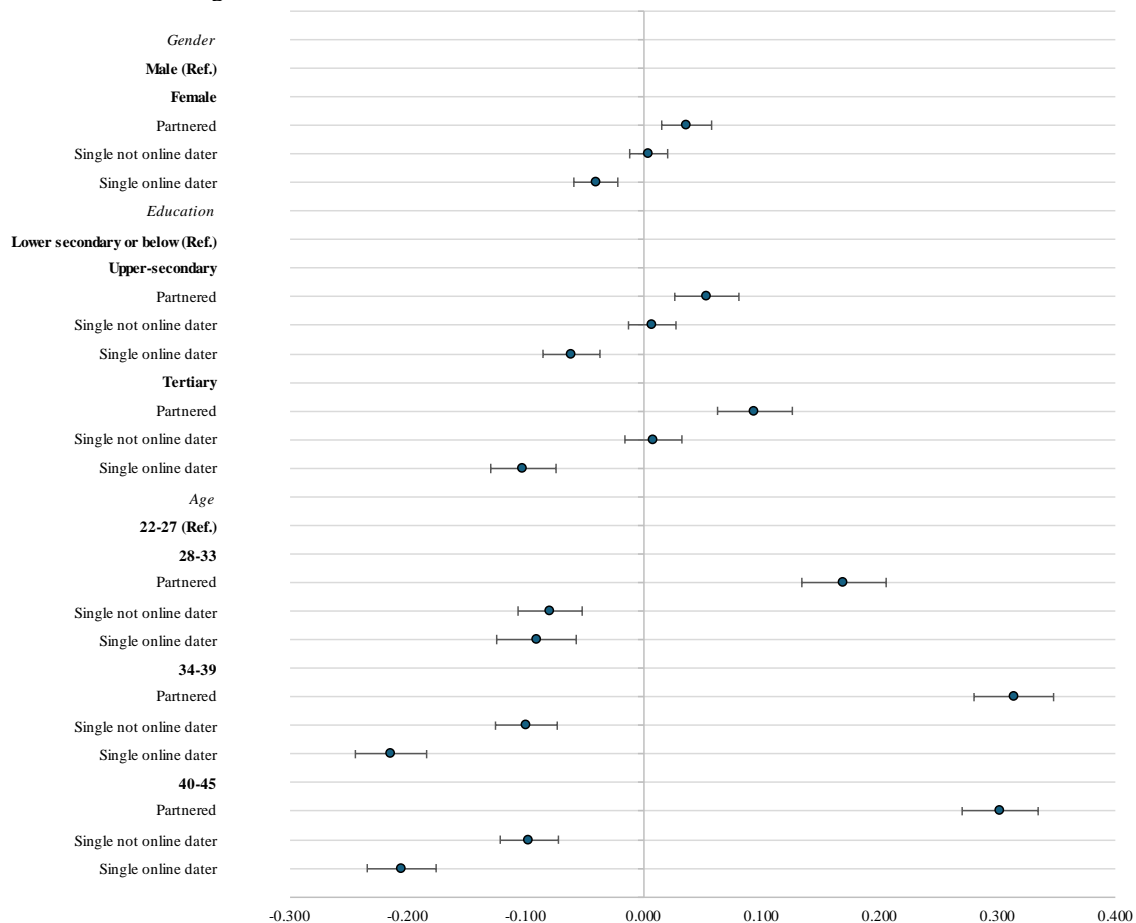
Source: Authors' elaboration based on data from the Age-It Family Demography Survey.

7.2 Socio-Demographic Selection into Online Dating

The joint analysis of partnership status and online dating shows that both are stratified along socio-demographic lines, particularly by education. Low educational attainment and young adulthood are

associated with both current singlehood and online dating engagement (Figure 2). These factors distinguish not only partnered individuals from singles but also ODS users from non-users among singles, suggesting that online daters are subject to a dual selection process – into singlehood and into online dating.

Figure 2 – Average marginal effects of gender, education, and age on the likelihood of being partnered, single and not online dater, and single online dater



Source: Authors' elaboration based on data from the Age-It Family Demography Survey (N = 7,168).

Results of multinomial logistic regression controlling for country of birth, partnership history, parental educational background, region of residence, size of residential area, and relevant interactions. 95% confidence intervals are based on robust standard errors.

Additional nuance emerges from interactions between education, age, and gender (Figure 3).

Individuals with low educational attainment display the highest predicted probabilities of using ODSs for partner search, whereas the lowest probabilities are reported among tertiary-educated individuals.

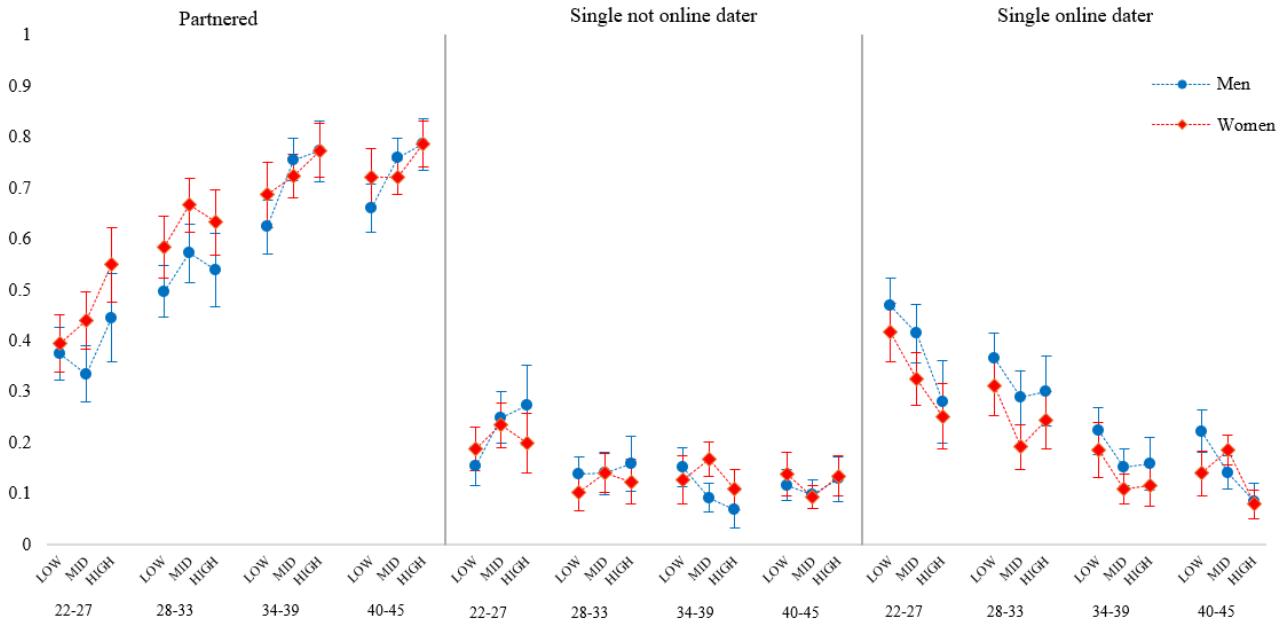
This negative educational gradient – consistently observed across age groups and for men and women alike – provides support for the hypothesis pointing to the dating disadvantage associated with low educational attainment (H1). The disadvantage perspective is further supported by the higher

probabilities of singlehood observed among low-educated individuals. Moreover, single individuals with low educational attainment are substantially more likely to use ODSs for partner search than not, indicating a dual selection process into singlehood and online dating. Patterns among individuals with upper-secondary education are less consistent, possibly reflecting the heterogeneity of this group, particularly within the youngest age group, which displays the highest proportion of students.

Young adults likewise constitute a selected group with respect to both singlehood and online dating. In addition to having the lowest partnership chances, they are disproportionately more likely to engage in ODS use when single, regardless of gender and educational level, in line with our expectations (H2a). A wide gap between those younger and older than 33/34 is particularly evident. As posited, educational differences in ODS use widen at older ages (H2b), suggesting that the educational disadvantage becomes increasingly salient for online dating engagement later in the life course. Among singles aged 40–45, the predicted probability of ODS use for the low-educated is 2.2 times as high as for the tertiary-educated, whereas this ratio reduces at younger ages.

Finally, although men exhibit a higher overall probability of ODS use, gender differences across age and educational groups are modest, partly in contrast with our expectations (H3a). This suggests that even one of the most robust findings in the online dating literature requires further specification, as rates of ODS use among women are largely comparable to those among men. Furthermore, educational differences in online dating engagement are only marginally wider among men, providing limited support for our hypothesis (H3b) and confirming that the negative educational gradient in online dating is largely gender-neutral, at least among cisgender heterosexual singles.

Figure 3 – Predicted probabilities of being partnered, single not online dater, and single online dater across interactions of gender, age, and education



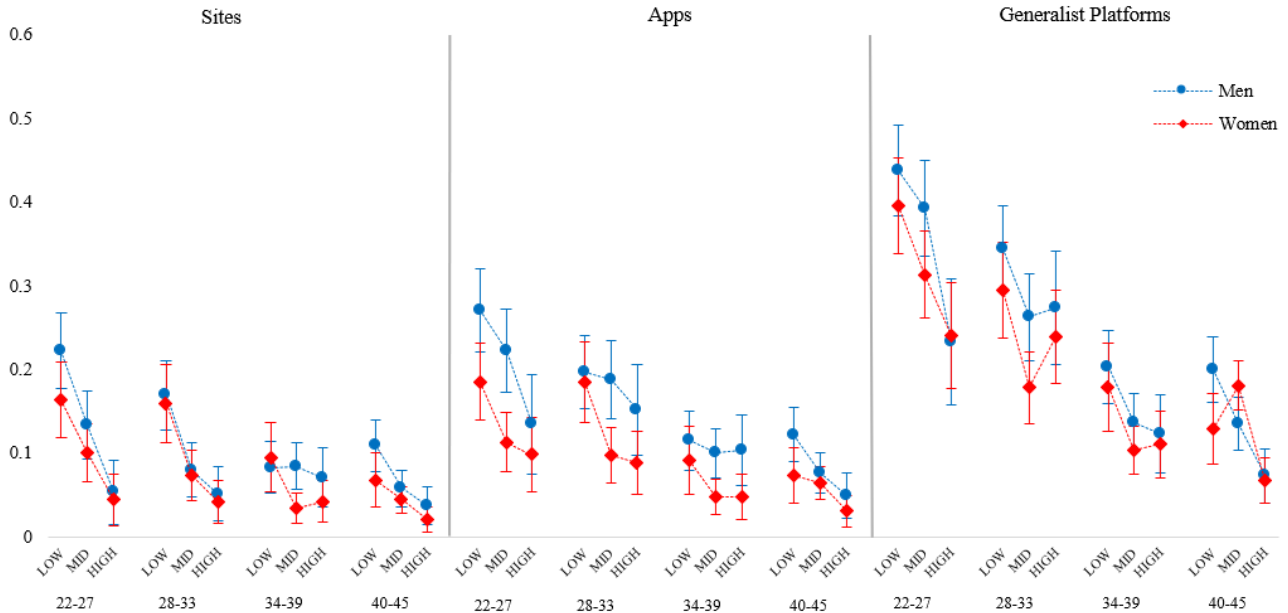
Source: Authors' elaboration based on data from the Age-It Family Demography Survey (N = 7,168). Estimations from multinomial logistic regression controlling for country of birth, partnership history, parental educational background, region of residence, size of residential area, and relevant interactions. 95% confidence intervals are based on robust standard errors.

7.3 Socio-demographic Patterns of Online Dating Across Platform Types

The interaction of educational, age, and gender differences reveals that low-educated young men (and, to a lesser extent, women) are the most likely to engage in online dating. Separate analyses by ODS type confirm these trends: low-educated individuals, young adults, and men consistently display higher probabilities of using dating websites, dating apps, and generalist platforms (Figure 4). The negative educational gradient in ODS use is particularly strong among users of dating websites. In this group, the predicted probability of online dating engagement is 2.8 times higher for low-educated singles than for their tertiary-educated counterparts, whereas this ratio is 1.8 among dating app users and 1.6 among users of generalist platforms. Young adults are overall more likely to use all ODS types, including dating websites, which were the dominant platform prior to the diffusion of smartphone applications. However, age differences narrow considerably among users of websites and apps with intermediate and higher educational attainment, especially among women. The gap between younger and older adults is slightly wider among users of dating apps and generalist platforms. Finally, gender differences are more pronounced among users of dating apps and are mostly limited, or even absent, among users of dating websites and generalist platforms, suggesting

that the higher prevalence of male online daters traditionally reported in the literature is platform-specific.

Figure 4 – Predicted probabilities of using different types of ODSs by interactions of gender, age, and education

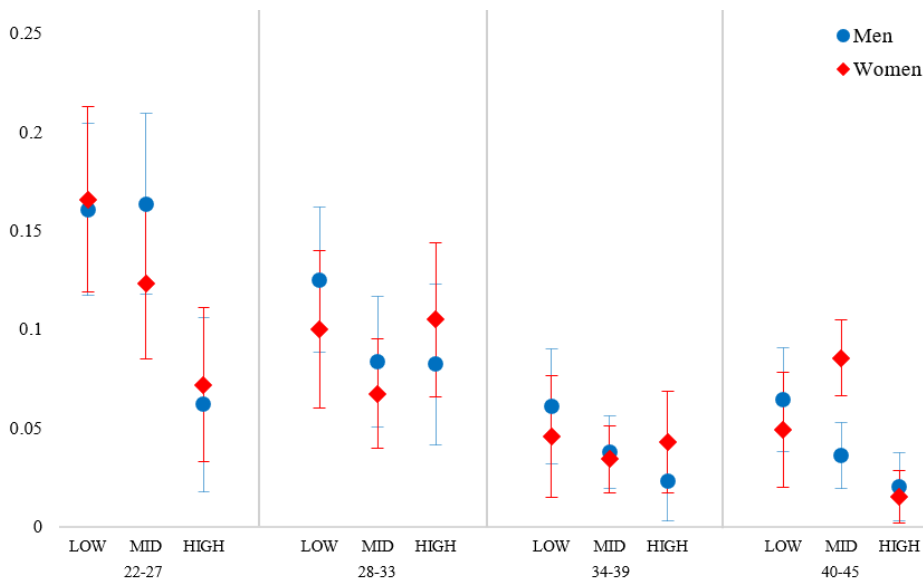


Source: Authors' elaboration based on data from the Age-It Family Demography Survey (N = 7,156 for sites; N = 7,159 for apps; N = 7,160 for generalist platforms). Estimations from multinomial logistic regressions controlling for country of birth, partnership history, parental educational background, region of residence, size of residential area, and relevant interactions. 95% confidence intervals are based on robust standard errors.

7.4 Frequency of Online Partner Search

The analysis of frequency of use provides further evidence of the negative educational gradient in online partner search (Figure 5). Low-educated singles are more likely not only to engage in online dating but also to use ODSs frequently, particularly at younger ages. Frequent use is more common among young adults, while it becomes rare among older and tertiary-educated singles. Gender differences in frequent use are inconsistent, as women display higher or similar probabilities of frequent online dating activity in most cases. Overall, patterns of frequent ODS use confirm that the online dating phenomenon in Italy is disproportionately concentrated among individuals with lower educational attainment, whereas the tertiary-educated tend to refrain from online partner search or engage in it less frequently.

Figure 5 – Predicted probabilities of being a frequent ODS user by interactions of gender, age, and education



Source: Authors' elaboration based on data from the Age-It Family Demography Survey (N = 7,168). Estimations from multinomial logistic regression controlling for country of birth, partnership history, parental educational background, region of residence, size of residential area, and relevant interactions. 95% confidence intervals are based on robust standard errors.

7.5 Further Results and Additional Analyses

Partnership experience is an important correlate of online dating engagement. Individuals with prior experience of cohabitation or marriage are more likely to use ODSs than those who have never entered a co-residential partnership. In line with the disadvantage perspective, the gap in the likelihood of ODS use between singles with and without partnership experience is particularly wide at older ages, when individuals face more limited offline meeting opportunities, especially following union dissolution. Furthermore, having at least one tertiary-educated parent is associated with a higher likelihood of ODS use, potentially reflecting less traditional family norms. Individuals born in Italy are also substantially more likely to use ODSs when single, which may limit opportunities for inter-ethnic encounters in the online dating market. Geographically, there is considerable regional variation in online partner search, though it does not align clearly with Italy's macro-regions. In addition, the prevalence of online dating engagement varies only marginally by residential area size, suggesting that digital partner search transcends traditional urban–rural divides.

To account for occupational heterogeneity within educational strata, we estimate two alternative versions of the main model (Figure 2): one including occupational status among the covariates and another restricting the sample to individuals aged 28–45. First, although the overall

patterns by education, age, and gender persist, students have the highest likelihood of being ODS users and exhibit the strongest negative educational gradient, which is nonetheless evident among employed individuals. Second, the main socio-demographic patterns of online dating are also confirmed when the youngest age group is excluded. Finally, we re-estimate the main model by restricting the sample to single individuals. The results are overall consistent with the main findings. In particular, the negative gradient of education becomes even stronger when examining only singles.

8. Discussion and Conclusions

Despite the widespread diffusion of digital technologies and dating platforms, the socio-demographic literature has so far been constrained in its ability to fully assess the online dating phenomenon, primarily due to limited data availability. This study addresses several research gaps by considering the broad population of heterosexual online daters – not only those who succeeded in finding a partner through ODSs – by examining different types of ODSs, and by providing some of the first population-based evidence on online dating in Italy using novel survey data that include detailed information on online partner search. This study is also one of the few to explicitly link online partner search to broader trends in singlehood, examining ODS use while accounting for singlehood (Sautter, Tippett, and Morgan 2010; Potarca 2021). The findings show that singles using ODSs for partner search experience a dual selection process – into singlehood and into online dating – along key socio-demographic lines, particularly education. Low-educated individuals exhibit both higher probabilities of being single and higher probabilities of engaging in online dating when single. This suggests that the stratification of ODS use cannot be explained solely by the stratification of singlehood, even though patterns in singlehood and online dating tend to mirror one another. Notably, those most likely to be single are also the most likely to engage in online partner search.

The negative educational gradient in online dating and singlehood emerges as the central finding of this study. Differences between low- and tertiary-educated individuals are substantial and

persistent across all age groups and genders, whereas patterns among those with upper-secondary education are less consistent. On the one hand, low-educated individuals have a higher likelihood of being single, in line with theoretical arguments emphasising the dating market disadvantage associated with lower educational attainment (De Hauw, Grow, and Van Bavel 2017; Sturm and Van Bavel 2024). On the other hand, low-educated singles are the most likely to engage in online partner search and exhibit the widest gaps between ODS users and non-users. These results provide further support for the disadvantage perspective – which interprets online dating as a strategy to overcome limited meeting opportunities in conventional contexts – and contrast with previous studies reporting a positive or null association between education and ODS use.

Young adults are also more likely to engage in online dating, reflecting both a higher likelihood of singlehood and a greater propensity to use ODSs when single. These patterns are shaped by the interplay of life-course and cohort dynamics. In contemporary societies, singlehood at younger ages is increasingly common due to delayed partnership formation and more exploratory approaches to relationships. At the same time, youth may be associated with occupational instability and less favourable working conditions, which may contribute to postponed partnerships and lower social attractiveness, particularly among men. Consistent with this perspective, employed individuals show higher probabilities of being partnered. At the same time, younger cohorts have grown up in a context where digitally mediated partner search is widely accepted and culturally normalised. Consequently, they may use ODSs as a routine means of romantic and sexual socialisation, rather than solely in response to limited offline meeting opportunities or to search for a committed relationship. Importantly, educational differences in online dating engagement are relatively modest at younger ages, as both low- and tertiary-educated singles are similarly embedded in dense social networks and digital environments. These differences widen at older ages, particularly following union dissolution, in line with theoretical arguments highlighting more constrained offline meeting opportunities and less favourable mating markets later in life. Accordingly, online dating increasingly serves a compensatory function for educational disadvantage as individuals age.

Even though men are more likely than women to use ODSs overall, gender differences are modest, underscoring the widespread diffusion of dating platforms and the high proportion of female users, who are often as likely as men to use ODSs frequently. Moreover, the negative educational gradient in online dating is consistently observed among both men and women. In particular, low-educated men are most likely to be single and to engage in online partner search when single, reinforcing the disadvantage perspective, according to which they face the least favourable meeting opportunities, being penalised by both reduced social attractiveness and structural constraints. By contrast, tertiary-educated women show higher probabilities of being partnered and lower probabilities of using ODSs. Combined with rising female hypogamy observed at the macro level, this suggests that the anticipated shortage of potential partners (Corti and Scherer 2021) may not necessarily limit their partnership prospects.

Overall, the pronounced negative educational gradient in online dating observed in Italy suggests that the diffusion of ODS use is especially concentrated among singles facing the greatest constraints in conventional partner markets. Individuals with limited offline opportunities are more likely to use ODSs, consistent with the interpretation of online dating as a compensatory strategy (Rosenfeld and Thomas 2012). This pattern is consistent with the POD framework, previously advanced to explain demographic shifts such as the rise of non-marital childbearing (Perelli-Harris et al. 2010; Perelli-Harris and Gerber 2011). The dual-selection perspective adopted in this study further clarifies the relationship between singlehood and online dating. Although socio-demographic differentials in singlehood shape who is exposed to the online dating market, stratification in ODS use cannot be reduced to these compositional differences. Even among singles, engagement in online partner search remains socially patterned. Online dating stratification thus reflects a dual selection process, underscoring the importance of accounting for these dynamics to avoid biased portrayals of digital partner markets (Sautter, Tippett, and Morgan 2010; Potarca 2021).

Finally, the intersection of education, age, and gender reveals that low-educated young men – and, to a lesser extent, women – are disproportionately active in online partner search. Their

overrepresentation shapes the structure of meeting opportunities provided by the online environment, indicating that ODSs function as socially structured meeting settings rather than neutral arenas (Arosio 2023). Combined with modest gender imbalances within sub-groups, this configuration may increase the likelihood of homogamous encounters, particularly among those with less favourable dating prospects. Rather than reducing social boundaries, online dating may reproduce educational inequality in partner matching, thereby calling into question optimistic assumptions of the internet as a force of social integration.

Several aspects remain beyond the scope of this study. Most notably, it does not include queer individuals – who are often highly active ODS users – nor teenagers and older adults, who would likely exhibit distinct patterns of socio-demographic stratification and online dating behaviour. Other dimensions, such as motivations beyond partner search (e.g. casual sex encounters), offline partner search, and partnership intentions, are also not examined. Future research could explore these areas and investigate individual preferences in online partner search. While the present work has focused on the meeting dimension of online dating, examining couples formed via ODSs and the long-term outcomes of such unions would provide a more comprehensive understanding of how digital platforms shape partnership and family dynamics. Finally, the cross-sectional nature of the dataset limits the ability to track individuals over time and across different stages of partnership trajectories. Nonetheless, this dataset constitutes one of the first sources enabling a detailed and population-based assessment of online daters' characteristics and behaviours in Italy.

In conclusion, this study demonstrates the widespread diffusion of online dating in Italy and shows how it is stratified along socio-demographic lines. It also delineates the profile of online daters, who appear to constitute a selected group with respect to both singlehood and ODS use. Overall, ODSs resemble conventional meeting settings in that they provide non-random meeting opportunities and reproduce stratification patterns commonly observed in offline contexts.

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Data Availability Statement

The data underlying this article will be shared on reasonable request to the corresponding author.

