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The stigma of smoking among women: A systematic review☆

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ABSTRACT

Background: Smoking stigma has been well documented, but little is known regarding its specific features and effects on women. Notably, women face unique social, cultural, and economic challenges that may interact with smoking stigma and impact health outcomes. This review investigates the extent to which smoking women encounter and internalise stigma, while examining the various coping mechanisms they employ to manage these negative experiences.

Methods: In November 2022, major databases were systematically searched with no time restrictions. After applying inclusion and exclusion criteria, 23 studies (three quantitative and 20 qualitative) met our criteria. We conducted a quality assessment and summarised the findings pertaining to public stigma, self-stigma, and coping strategies.

Results: The stigma about smoking emerges from a variety of sources, such as family, healthcare providers, or internet forums. Women smokers are universally aware of the negative image they have in society. Yet, their experiences and management of the stigma of smoking are shaped by other variables such as cultural background, social class, or motherhood status. Smoking stigma produces ambivalent effects, such as concealment, reduced usage of support services, and to a lesser extent, smoking cessation motivation.

Conclusions: These results indicate that smoking stigma is an important social justice and public health issue and that further research is needed to better prevent its effects on women's well-being and health behaviours.

1. Introduction

Despite extensive documentation of its detrimental effects on human health, smoking remains a significant contributor to premature death and disability worldwide (Flor et al., 2021). Its health consequences encompass a wide range of diseases, such as lung cancer, chronic obstructive pulmonary disease, cardiovascular diseases, respiratory infections. Smoking poses significant challenges to healthcare systems worldwide and is responsible for approximately 8 million deaths each year.

Numerous efforts have been implemented to decrease smoking (Hoffman and Tan, 2015). However, despite a noticeable decline in smoking prevalence, the total number of smokers has increased due to population growth (Reitsma et al., 2021). In 2019, the global census identified over 1.1 billion tobacco users, making smoking one of the most significant preventable causes of illness and premature death (Reitsma et al., 2021). These data underscore the urgent need for countries to intensify the implementation of a comprehensive, diverse, and targeted set of tobacco control practices, aimed at reducing the burden of morbidity and mortality attributable to smoking.

Tobacco control has long ignored gender issues (Amos et al., 2012), but in recent years, many have requested action regarding women's smoking (Allen et al., 2014; Greaves, 2015). According to the World Health Organization, 'Gender is a fundamental determinant of women's and men's health and must be considered in tobacco-control efforts' (World Health Organization, 2021, p. 4). Gender-sensitive approaches to tobacco usage consider the impact of the tobacco industry's gendered marketing strategies (Amos et al., 2012), and contextual factors that

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may contribute to women's smoking, such as trauma and violence (Crane et al., 2013), poverty (World Health Organization & Ciapponi, 2014), gendered identity construction, and social functions (Meijer et al., 2018). They also consider the sex and gender-related challenges that women may face when attempting to cease smoking, such as biological differences in addiction mechanism (Sanchis-Segura and Becker, 2016), weight concern (Alexander et al., 2010), partner smoking (Chamberlain et al., 2017), concurrent mental health issues (Fluharty et al., 2017), and stigmatisation (Flemming et al., 2015). A better understanding of the meanings of women's smoking as well as the social and cultural contexts in which they smoke would allow public health actors to better understand how to intervene with this population (Greaves, 2015).

Health-related stigma can be defined as 'a social process, experienced or anticipated, characterised by exclusion, rejection, blame, or devaluation that results from experience, perception or reasonable anticipation of an adverse social judgement about a person or group' (Weiss et al., 2006, p. 280). A typical distinction is made between *public stigma*, which refers to the negative attitudes of members of the public toward people with devalued characteristics, and *self-stigma*, which occurs when stigmatised people internalise these public attitudes. An important cognitive model of self-stigma, originally proposed by Corrigan et al. for mental illnesses (Corrigan and Watson, 2002), describes self-stigma as a progressive phenomenon. According to this model, stigmatised individuals first become aware of prevailing negative stereotypes and then they may agree, to some extent, with these negative stereotypes. Finally, they may apply those negative stereotypes to themselves, resulting in a very negative perception of oneself. This model provides a framework to investigate the link between public negative attitudes and individual self-stigmatisation. Recently, this model has been mobilized for alcohol-related disorders (Schomerus et al., 2011), as well as in the context of smoking and addiction (Evans-Polce et al., 2015).

Attitudes toward smoking have changed considerably in recent decades, partially due to concerted public health policy campaigns to denormalise smoking (Bell et al., 2010; Castaldelli-Maia et al., 2016). What was once perceived as "glamorous" is now commonly regarded as unhealthy, unhygienic, and indicative of a lower social status and moral shortcomings. People often assume that smokers' stigmatisation could be a blessing in disguise—temporary pain that enables people to stop smoking for their own benefit. However, similar to Burris (2008, p. 475), we may ask, 'Where is the evidence that inculcating a sense of spoiled identity is a good way to get people to adopt healthier behaviors?'. In recent experimental studies, smoking stigma has been associated with an inability to delay cigarette consumption (Cortland et al., 2019) as well as higher physiological reactivity, cognitive fatigue, and self-exempting beliefs (Helweg-Larsen et al., 2019). Additionally, self-stigma is a barrier to healthcare-seeking behaviours and treatment adherence (Stangl et al., 2019), which is important because counselling and follow-up from healthcare providers is associated with higher cessation rates (Stead et al., 2013).

Other studies have reported stigmatisation of smoking alternatives, such as electronic cigarettes (Hsu and Grodal, 2021; O'Connor et al., 2017). The evolution of smoking habits underwent a significant change with the market introduction of the electronic cigarette, presented as a potentially less harmful alternative to traditional cigarettes (Castaldelli-Maia et al., 2016). However, the lack of long-term data on the effects of e-cigarette use raises concerns about potential risks that are yet unknown (George et al., 2019; Honeycutt et al., 2022). This innovation quickly attracted the interest of smokers looking to reduce their health risks (Berg et al., 2015; Bowker et al., 2018; Goniewicz et al., 2013). At the same time, e-cigarette marketing has often employed gendered strategies, specifically targeting women with designs and flavors perceived as feminine (Greene et al., 2022). It raises the question of whether this habit is considered more "glamorous" and if it will lead to similar levels of stigma, or even new forms of stigma, in the years to come (Castaldelli-Maia et al., 2016).

A growing number of scholars have explored women's experiences with smoking stigma and suggest that women smokers are further stigmatised because their behaviour is inconsistent with anti-smoking discourses and hegemonic gender norms that govern femininity (Alexander et al., 2010; Wigginton and Lee, 2013b). Smoking stigma experiences and coping strategies also appear to be shaped by intersecting identities that include cultural context, social class, or motherhood status (Antin et al., 2017; Triandafilidis et al., 2017; Wigginton and Lafrance, 2016). The intersectional approach, proposed by Crenshaw (1989), recognizes the overlapping and intersecting systems of oppression and discrimination that individuals face due to their multiple social identities, such as race, gender, class, and sexuality. Intersectional stigma is an emerging concept that has been developed to characterise the convergence of several stigmatised identities within a person or group, and to address their joint effects on health and well-being (Bowleg, 2012). Recent intersectional studies have focused on stigmatisation related to various health conditions and behaviors, including HIV (Parker et al., 2017), smoking (Fielding-Singh et al., 2020), and mental health (Jackson et al., 2022), often in relation to racial identity, gender, socioeconomic status, and sexual orientation. Overall, the literature shows that various stigmas are interconnected and interdependent, and when their effects combine, they can be cumulative, although they frequently present as more intricate than a singular stigma (Turan et al., 2019).

In a systematic review conducted in 2013, Evans-Polce et al. (2015) highlighted a significant knowledge gap regarding smoking-related stigma and its consequences according to other variables such as gender, culture or social class. The intersecting stigma faced by smoking women suggests the need to synthesise and analyze current research findings on this topic. Our systematic review delves into the stigma uniquely experienced by women who smoke or use nicotine products. We analyze publications addressing this stigma, taking into account not only the societal norms associated with the female gender but also other aspects of their identity, such as pregnancy, social status, ethnicity, and health. A thorough review of this literature would provide a better understanding of smoking in specific and vulnerable groups that have multiple stigmatised identities. It would also provide guidance on intervention strategies to reduce stigma and improve physical and mental health in those groups.

2. Methods

The current study was carried out based on the guidelines and principles outlined by the PRISMA statement 2020 and checklist (Page et al., 2021), as well as the recommendations provided by Johnson and Hennessy (2019) for authors when disseminating their systematic review. The protocol was registered in International Prospective Register of Systematic Reviews (CRD42022363253).

2.1. Search strategy

We searched for articles on smoking stigma among women in the following databases: Medline, PsycInfo, Psychology and Behavioural Sciences Collection, and PsycArticles. Additional studies were identified through forward citation searching of reference lists of included studies. We conducted this search in November 2022 utilising, without time restrictions, the following search terms: (women OR woman OR girl OR pregn*) AND (tobacco OR tabagism OR smok* OR cigarette OR e-cigarette OR electronic cigarette OR vaping) AND (judgment OR stigma* OR discrimination).

2.2. Inclusion and exclusion criteria

Inclusion criteria were (1) articles based on original quantitative and qualitative data, (2) peer-reviewed articles, (3) articles published in English, and (4) articles wholly or partially addressing the stigmatisation of women's smoking. This could include studies examining the

attitudes toward women smoking or consequences of smoking stigma among women. Articles could also address factors influencing stigma or strategies to reduce it. Additional exclusion criteria were added after a pilot search of articles. To specifically address the stigmatisation associated with female smoking, we excluded articles about stigmatisation of other substance use and specific diseases such as lung cancer or chronic obstructive pulmonary disease. All titles and abstracts were individually evaluated by one reviewer (JCD), and the pre-selected studies were also subject to independent evaluation by a second reviewer (DL). An intra-class coefficient (ICC) was calculated to determine inter-rater reliability. Both reviewers examined the articles utilising the inclusion and exclusion criteria detailed above. Disagreements were resolved through discussion.

2.3. Data extraction and synthesis

The following information was collected: (1) study characteristics, including authors and year and country of publication, participants, objective, and design; information related to (2) public stigma, (3) self-stigma, (4) coping strategies, and (5) group differences. Similar to Evans-Polce et al. (2015), we grouped findings of women's smoking-related self-stigma into three categories according to the stages represented in the progressive model of self-stigma (Corrigan and Watson, 2002): (1) stereotype awareness, (2) stereotype agreement, and (3) application of stereotypes to oneself and self-stigmatisation consequences. In accordance with the recommendations of Turan et al. (2019) for research on intersectional stigma, we collected findings on how the experiences and consequences of women's smoking stigma are likely to vary depending on the intersection of certain identities such as gender, cultural background, social class, or motherhood status. Given the heterogeneity of the studies, including differences in design and measures of stigma, it was not possible to conduct a meta-analysis or meta-synthesis of the data. Therefore, a numerical summary and a narrative description of the results are provided (see Popay et al., 2006).

2.4. Quality assessment

To assess the quality of the studies, a critical appraisal was conducted utilising the most recent version of the Mixed Methods Appraisal Tool (MMAT; Hong et al., 2018). The MMAT is designed for usage in mixed-methods reviews and is suitable for qualitative research, randomised controlled trials, non-randomised studies, quantitative descriptive studies, and mixed-methods studies. All studies were evaluated by the first reviewer (JCD), and a portion of the studies (50%) were randomly selected for evaluation by a second reviewer (DL). To prevent any potential conflict of interest, an article written by the second reviewer (DL) was exclusively assessed by the first reviewer (JCD).

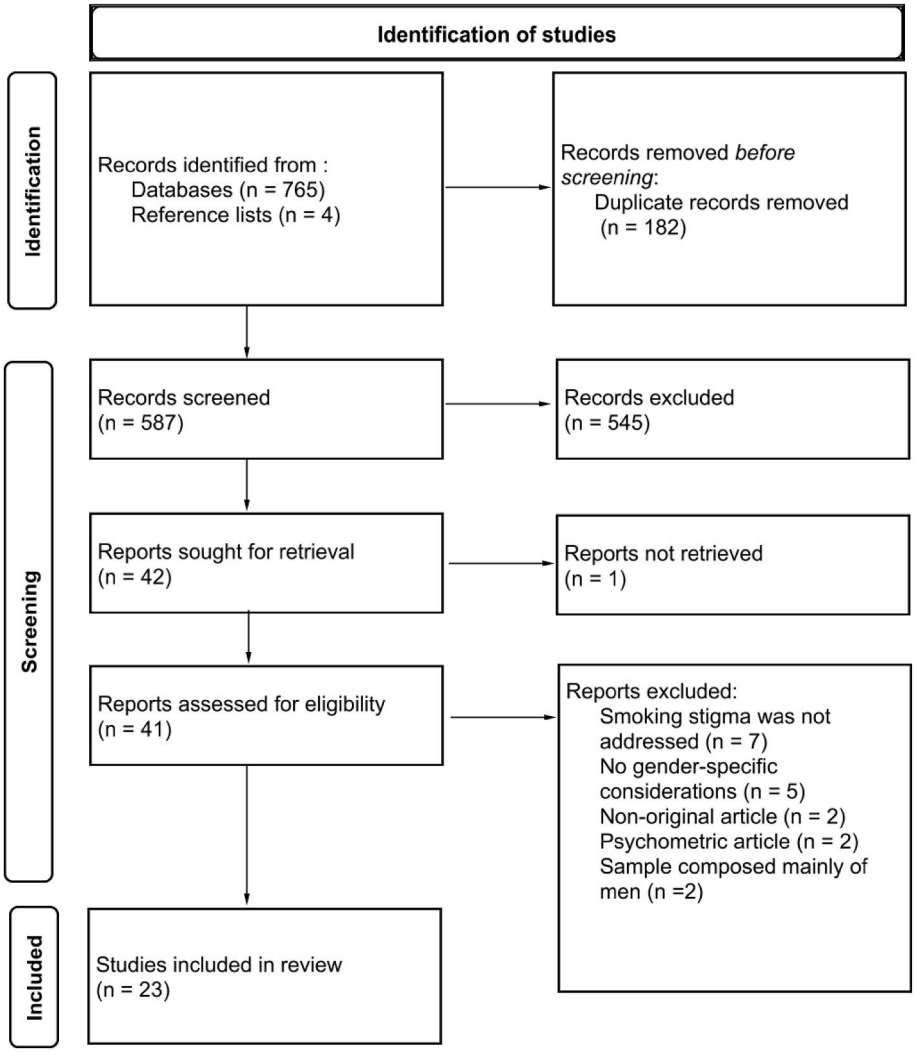

Fig. 1. Adapted PRISMA flow diagram (Page et al., 2021).

3. Results

We identified 587 unduplicated records from the databases queried and the reference lists of the articles reviewed. After a close examination of titles and abstracts, 42 articles were deemed relevant. The inter-rater agreement was satisfactory (ICC = 0.89, CI 95%: 0.81–0.94). One article was not found. In accordance with the exclusion criteria, 18 articles were removed. The remaining 23 articles are included in this review. The studies were published between 2003 and 2022. Twenty studies were qualitative, and three were quantitative. A PRISMA 2020 flow diagram indicates the number of records identified, included, and excluded as well as the reasons for exclusions (Fig. 1).

3.1. Quality assessment

The quality assessment of the studies was performed independently by two reviewers. The first reviewer (JCD) assessed all articles ($n = 23$), while the second reviewer (DL) assessed 12 randomly selected articles, representing approximately half of the studies employed in the review. An intra-class coefficient was calculated and indicated satisfactory inter-rater reliability (ICC = 0.90, CI 95%: 0.72–0.97). Of the qualitative research, 19 of 20 studies met at least four of the five criteria proposed by the MMAT, thus indicating appropriate quality. One study received a score of 3 because it was based on a small sample of women, not all of whom were smokers (Grant et al., 2020). Of the quantitative studies, two of the three met at least three of the five criteria proposed by the MMAT. In accordance with the MMAT, one study (Aronson and Bergh, 2019) was not assigned a score as both reviewers agreed that the data collection method did not sufficiently address the research questions. Table 1 summarises the characteristics of the included studies.

Table 1
Study characteristics for included studies ($n = 23$).

Author and year	Country	Participants	Objective	Design	Quality
Qualitative studies					
Alexander et al. (2010)	Canada	Adult smokers ($n = 23$)	To examine how the social context shapes men and women's smoking practices	Interviews	4
Antin et al. (2017)	US	Low-income Black women smokers ($n = 15$)	To examine the experience of smoking stigma among low-income Black women	Interviews and focus group	4
Borland et al. (2013)	Canada	Key informants ($n = 31$) and pregnant or postpartum women ($n = 29$)	To examine how policies, programmes, and practices encourage or discourage women's usage of cessation support	Interviews	5
Bowker et al. (2018)	UK	Pregnant women, current smokers, or recent ex-smokers ($n = 30$)	To examine opinions regarding e-cigarette usage during pregnancy or postpartum	Interviews	4
Bowker et al. (2020)	UK	Pregnant or postpartum women who vaped during pregnancy ($n = 15$)	To understand pregnant women's vaping experiences, including facilitators and barriers to vaping	Interviews	4
Bull et al. (2007)	UK	Pregnant women ($n = 7$), mothers ($n = 21$), and their partners ($n = 5$)	To explore the social attitudes toward smoking of pregnant women, mothers, and their partners	Interviews	5
Bush et al. (2003)	UK	Bangladeshi ($n = 87$) and Pakistani ($n = 54$) communities	To understand the influences on smoking behaviour in Bangladeshi and Pakistani communities	Interviews and focus group	5
England et al. (2016)	US	Pregnant smokers ($n = 32$), pregnant quitters ($n = 27$), and smokers planning a pregnancy ($n = 43$)	To explore women's perceptions of non-combusted tobacco products and nicotine replacement therapy	Focus groups	5
Grant et al. (2020)	UK	Pregnant women ($n = 10$)	To understand the health issues that affect pregnant women who live in low-income areas	Interviews	3
Hookway et al. (2017)	Australia	A total of 121 online responses to online articles	To examine the online moral outrage directed at a research trial that utilised financial incentives to encourage pregnant mothers to quit smoking	Thematic analysis of online comments	4.5
Kahr et al. (2015)	US	Pregnant women ($n = 87$)	To explore the stigma of e-cigarette usage during pregnancy	Focus groups	5
Kim and Cho (2020)	South Korea	Users of heated tobacco products ($n = 38$)	To highlight unexplored gendered factors that influence the usage of heated tobacco products	Focus groups	5
Loyal et al. (2022a)	France	Adults from the public ($n = 100$)	To extensively describe the public stigma associated with smoking during pregnancy	Thematic analysis of open-ended questions	5
Martinez Leal et al. (2021)	US	Women who were receiving care for substance use disorders ($n = 59$)	To describe the functions of smoking for women with substance use disorders	Focus groups	4
McCready et al. (2019)	Canada	Women smokers who lived in disadvantaged and advantaged areas ($n = 15$)	To examine how women experience smoking-related stigma in relation to their low-income neighborhoods	Interviews	4
Schilling et al. (2019)	Germany	A total of 25 online discussions	To explore the perceived threats and benefits of as well as barriers to e-cigarette usage during pregnancy	Thematic analysis of online comments	5
Triandafilidis et al. (2017)	Australia	Young women, smokers, and ex-smokers ($n = 27$)	To explore how young women encounter and counter discourses of smoking-related stigma	Interviews	4
Wigginton and Lee (2013a)	Australia	Women who smoked during pregnancy ($n = 11$)	To examine experiences of stigma among pregnant smokers	Interviews	4
Wigginton and Lafrance (2016)	Australia	Women who smoked during pregnancy ($n = 60$)	To examine how women manage the 'spoiled identity' of being a pregnant smoker	Interviews, survey, analysis of a media article	5
Woo (2018)	South Korea	Women smokers ($n = 40$)	To explore how women smokers manage stigma and how the strategies they employ affect their smoking behaviours	Interviews	5
Quantitative studies					
Aronson and Bergh (2019)	Sweden	Adolescents ($n = 622$)	To examine mechanisms that explain smoking motivation despite stigma	Experimental study and photos	–
Kim and DeMarco (2022)	US	Women with HIV who were daily smokers ($n = 102$)	To examine the intersectionality of HIV-related stigma, tobacco smoking stigma, and mental health among women with HIV who smoke	Questionnaires	3
Wigginton and Lee (2013b)	Australia	Students ($n = 595$)	To examine smoking stigma expressed by students who rated a woman, described as a mother who was either smoking or not smoking and either pregnant or not pregnant	Experimental study, vignettes	3.5

3.2. Study characteristics

3.2.1. Sample population

Sample sizes ranged from 10 to 141 participants in the qualitative studies and from 102 to 622 participants in the quantitative studies. Researchers in nine (39.13%) of the 23 studies primarily interviewed pregnant or postpartum women who were smoking or vaping or had smoked or vaped during pregnancy (Borland et al., 2013; Bowker et al., 2018, 2020; Bull et al., 2007; England et al., 2016; Grant et al., 2020; Kahr et al., 2015; Wigginton and Lee, 2013a; Wigginton and Lafrance, 2016). Three studies (13.04%) featured women smokers who lived in economically disadvantaged areas (McCready et al., 2019; Triandafilidis et al., 2017), one of which included only Black women (Antin et al., 2017). Three studies' authors (13.04%) focussed on adolescents and young adults (Woo, 2018). Of these studies, two addressed the public stigma associated with women's smoking (Aronson and Bergh, 2019; Wigginton and Lee, 2013b). Researchers in two studies (8.70%) interviewed women smokers with a chronic disease; one focussed on HIV-positive women (Kim and DeMarco, 2022), and another one on women with substance use disorders (Martinez Leal et al., 2021). Two studies (8.70%) featured male and female adults who smoked (Alexander et al., 2010) or utilised heated tobacco products (Kim and Cho, 2020). Two studies' researchers (8.70%) utilised comments posted by internet users (Hookway et al., 2017; Schilling et al., 2019). Finally, researchers in one study (4.35%) surveyed adults from underrepresented communities (Bush et al., 2003), and those in another study (4.35%) surveyed adults from the broader public (Loyal et al., 2022a).

3.2.2. Study locations

The included studies were conducted in Australia (five studies, 21.74%), the United Kingdom (five studies, 21.74%), the United States (five studies, 21.74%), Canada (three studies, 13.04%), France, Germany, or Sweden (three studies, 13.04%, one study in each country), and South Korea (two studies, 8.70%). Most studies were conducted in Western countries ($n = 21$ studies, 91.30%).

3.3. Public stigma

Eight of the 23 studies (34.78%) examined public responses to women who smoke or use nicotine products (Aronson and Bergh, 2019; Bull et al., 2007; Bush et al., 2003; Hookway et al., 2017; Kahr et al., 2015; Loyal et al., 2022a; Schilling et al., 2019; Wigginton and Lee, 2013b). In two studies, young adults were confronted with women's smoking via experimental vignettes. Aronson and Bergh (2019) investigate Swedish youths' impressions when viewing a photo of a teenage girl either smoking or not smoking. The smoking girl was perceived as significantly less likeable, kind, and compassionate and more devious, conceited, popular, and prone to bullying. Similarly, Wigginton and Lee (2013b) present findings regarding women's smoking stigma expressed by Australian students via written vignettes. Participants rated the smoking women as less healthy and maternal and more ignorant, dismissive, guilty, selfish, and stressed. Moreover, the degree of stigma was higher toward pregnant smokers than non-pregnant smokers.

The authors of two other studies employed a netnographic approach. Hookway et al. (2017) studied online text comments posted by internet users in response to articles that discuss a research trial in which financial incentives were utilised to encourage pregnant mothers to cease smoking. Moral outrage was the dominant theme. Many commenters expressed emotional disgust, even horror, that pregnant smokers were being rewarded for abnormal and harmful behaviour. Schilling et al. (2019) explore and characterise perceived threats, benefits, and barriers to e-cigarette usage during pregnancy by studying several threads posted in online forums. E-cigarette usage during pregnancy was highly criticised. However, the stigma of e-cigarette usage during pregnancy was questioned and criticised by some internet users.

Another study describes the public stigma associated with smoking during pregnancy in France (Loyal et al., 2022a). Adults were recruited online and asked to respond in writing to three pairs of open-ended questions regarding the cognitions, emotions, and behaviours elicited by pregnant smokers. Themes are identified regarding cognitions (e.g., irresponsible, thoughtless, inattentive), emotions (e.g., anger, disgust), and behaviours (e.g., inform and persuade, moralise, blame).

Two studies' authors have employed individual interviews and focus groups to gather public perceptions of women who smoke or use nicotine products. One study was conducted in the United Kingdom with men and women from the Bangladeshi and Pakistani communities (Bush et al., 2003). Participants often referred to the taboo, stigma, and non-acceptance of smoking among women and utilised words such as *bad, labelled, shameful,* and *unpleasant*. Finally, through focus groups, Kahr et al. (2015) explore stigma associated with e-cigarette usage during pregnancy. A minor topic that emerged in the pregnant women's discussions was the belief that fewer known side effects may mean that the mother could be reducing the risk to her child.

3.4. Self-stigma

Researchers in 17 of the 23 studies (73.91%) have investigated self-stigma among females who smoke or use nicotine products (Alexander et al., 2010; Antin et al., 2017; Borland et al., 2013; Bowker et al., 2018; Bowker et al., 2020; Bull et al., 2007; Bush et al., 2003; England et al., 2016; Grant et al., 2020; Kim and Cho, 2020; Kim and DeMarco, 2022; Martinez Leal et al., 2021; McCready et al., 2019; Triandafilidis et al., 2017; Wigginton and Lee, 2013a; Wigginton and Lafrance, 2016; Woo, 2018). These studies were mainly based on individual interviews or focus groups. Only one of these studies is quantitative (Kim and DeMarco, 2022). Table 2 shows the stages addressed in each of the studies.

3.4.1. Stereotype awareness

All studies have presented a focus on women smokers' awareness of the stigma associated with using tobacco or nicotine products. These studies have revealed that women are largely aware of negative attitudes toward their smoking habit (e.g., McCready et al., 2019; Woo, 2018). Interview-based studies have demonstrated that they easily recalled being verbally criticised for smoking (e.g., Bull et al., 2007; Triandafilidis et al., 2017). The women further explained that while smoking is widely accepted and even taken for granted among men, it is despised among women (e.g., Alexander et al., 2010; Bush et al., 2003). Notably, pregnant women who smoked were particularly aware of the negative stereotypes associated with them. They were aware that pregnancy smoking is a taboo, that they are despised and disliked, and that they are perceived as irresponsible, selfish, or poorly educated (e.g., Grant et al., 2020; Wigginton and Lee, 2013a).

3.4.2. Stereotype agreement

Smoking women's agreement with these negative social attitudes has been addressed infrequently. Eight studies (34.78%) have explored this self-stigma phase (Alexander et al., 2010; Antin et al., 2017; Bowker et al., 2018; Bull et al., 2007; McCready et al., 2019; Triandafilidis et al., 2017; Wigginton and Lee, 2013a; Wigginton and Lafrance, 2016). Smoking women's agreement with the negative stereotypes varies widely across studies and sometimes within the same study. However, all studies have revealed that some participants agreed with the negative stereotypes. Some women described smoking stigma as positive, explaining that it may encourage women not to smoke (Triandafilidis et al., 2017; Wigginton and Lafrance, 2016). However, others indicated that they did not accept or even challenge this stigma (e.g., Antin et al., 2017; McCready et al., 2019).

3.4.3. Application of stereotypes to oneself and self-stigmatisation consequences

Eleven scholars (47.82%) have addressed the final stage of stigma

Table 2
Stages of the progressive model of self-stigma addressed in the studies.

Author and year	Stage 1	Stage 2	Stage 3	Main consequences
	Awareness	Agreement	Application	
Alexander et al. (2010)	x	x	x	Loss of "femininity", guilt, dissimulation
Antin et al. (2017)	x	x	x	Stress, loss of "femininity", guilt, dissimulation
Borland et al. (2013)	x		x	Guilt, dissimulation, justification
Bowker et al. (2018)	x	x		Guilt, dissimulation
Bowker et al. (2020)	x			Dissimulation, justification
Bull et al. (2007)	x	x	x	Guilt, dissimulation, justification
Bush et al. (2003)	x			Guilt, dissimulation
England et al. (2016)	x			Use of emerging tobacco products to avoid stigma
Grant et al. (2020)	x		x	Loss of the "good mother" identity, guilt, dissimulation, justification
Kim and Cho (2020)	x			Use of heated tobacco products to avoid stigma
Kim and DeMarco (2022) [a]	x			Anxiety
Martinez Leal et al. (2021)	x		x	Guilt, dissimulation
McCready et al. (2019)	x	x	x	Loss of "femininity", dissimulation
Triandafilidis et al. (2017)	x	x	x	Loss of "femininity", loss of the "good mother" identity, guilt, dissimulation, smoking cessation, justification
Wigginton and Lee (2013a)	x	x	x	Loss of the "good mother" identity, guilt, dissimulation, justification
Wigginton and Lafrance (2016)	x	x	x	Loss of the "good mother" identity, guilt, dissimulation, justification
Woo (2018)	x		x	Loss of "femininity", guilt, dissimulation, justification

Notes.
[a] All studies were qualitative except Kim and DeMarco (2022) *.

internalisation (Alexander et al., 2010; Antin et al., 2017; Borland et al., 2013; Bull et al., 2007; Grant et al., 2020; Martinez Leal et al., 2021; McCready et al., 2019; Triandafilidis et al., 2017; Wigginton and Lee, 2013a; Wigginton and Lafrance, 2016; Woo, 2018). Women may internalise these public attitudes and experience negative consequences, such as shame, guilt, stress or anxiety (e.g., Antin et al., 2017; Martinez Leal et al., 2021). Studies have indicated that some smoking women only apply or further apply negative stereotypes to a subgroup of smokers, such as working-class women (McCready et al., 2019) or those who smoke around children (Triandafilidis et al., 2017). These women symbolically create a division between "us" and "them" (e.g., bad mothers, poor working-class smokers). However, all studies indicated that women were likely to hide their smoking from health professionals, family or friends due to perceived social stigma. Conversely, only one qualitative study reported that some women feel that being stigmatised motivated them to stop smoking (Triandafilidis et al., 2017).

3.5. Coping strategies

3.5.1. Behavioural strategies

Sixteen studies (69.57%) have presented behavioural strategies utilised by women to manage stigma (Alexander et al., 2010; Antin et al., 2017; Borland et al., 2013; Bowker et al., 2018; Bowker et al., 2020; Bull et al., 2007; Bush et al., 2003; England et al., 2016; Grant et al., 2020; Kim and Cho, 2020; Martinez Leal et al., 2021; McCready et al., 2019; Triandafilidis et al., 2017; Wigginton and Lee, 2013a; Wigginton and Lafrance, 2016; Woo, 2018). Pregnant women described controlling where they smoke or vape and to whom they reveal their smoking habits to minimise potential judgement (e.g., Bowker et al., 2018; Grant et al., 2020; Triandafilidis et al., 2017). Women reported that they smoke in the backyard or in the car or state that the tobacco smell is from their smoking partner (e.g., Triandafilidis et al., 2017; Woo, 2018). Other behavioural strategies included the usage of e-cigarettes or heated tobacco products to circumvent the stigma (Bowker et al., 2018; England et al., 2016). In South Korea, Kim and Cho (2020) claim that the usage of heated tobacco may be a response to gender-differentiated motivational rationales. Men use them to avoid family pressure to stop smoking, whereas women use them to avoid stigma. Men enjoy heated tobacco indoors, primarily in non-smoking areas to avoid restrictions, while women employ them outdoors to avoid social disapproval, primarily on the street.

3.5.2. Discursive strategies

Eight studies (34.78%) have presented discursive strategies utilised by women to address stigma (Borland et al., 2013; Bowker et al., 2020; Bull et al., 2007; Grant et al., 2020; Triandafilidis et al., 2017; Wigginton and Lee, 2013a; Wigginton and Lafrance, 2016; Woo, 2018). Women primarily utilised this type of strategy to justify their current smoking behaviour. For example, they insisted that their smoking is temporary (e.g., they would stop if they were pregnant) or in response to a stressful situation (Woo, 2018). Other studies have expressed similar justification attempts among pregnant women to maintain their identity as a respectable mother (e.g., Wigginton and Lee, 2013a; Grant et al., 2020). They justified their smoking habits as an informed choice (sometimes supported by health professionals and drawing on so-called medical discourse) that is actually better for the foetus than the stress of ceasing (e.g., Borland et al., 2013; Wigginton and Lee, 2013a). Moreover, some pregnant and postpartum women who utilised e-cigarettes reported that the latest research on the safety of vaping makes them feel more confident and able to respond to criticism (Bowker et al., 2020; Grant et al., 2020).

3.6. Intersectional stigma

3.6.1. Pregnancy

Thirteen studies (56.52%) suggest an increased level of stigma associated with smoking during pregnancy (Borland et al., 2013; Bowker et al., 2018; Bowker et al., 2020; Bull et al., 2007; England et al., 2016; Grant et al., 2020; Hookway et al., 2017; Kahr et al., 2015; Loyal et al., 2022a; Triandafilidis et al., 2017; Wigginton and Lee, 2013a; Wigginton and Lee, 2013b; Wigginton and Lafrance, 2016). Indeed, smoking conflicts not only with anti-smoking discourses but also with hegemonic constructions of the pregnant woman and upstanding mother (e.g., Hookway et al., 2017; Wigginton and Lee, 2013b). Women reported moral disapproval from friends, family members, co-workers, and even strangers (e.g., England et al., 2016; Grant et al., 2020). The women's narratives were infused with moral language that was dominated by *guilt, shame,* and *embarrassment* as well as descriptions of smoking as *bad* and *wrong* and something they *shouldn't do* (e.g., Borland et al., 2013; Wigginton and Lee, 2013a). Many pregnant women claimed to hide their tobacco usage (e.g., Bull et al., 2007; Wigginton and Lafrance, 2016). Additionally, women expressed negative views of medical professionals, describing them as paternalistic and overly reliant on

brochures and lectures (e.g., Borland et al., 2013; Grant et al., 2020). Others lamented the lack of encouragement and support in their attempts to reduce smoking (e.g., Triandafilidis et al., 2017; Wigginton and Lee, 2013a). Some women did not inform their physicians of their smoking status to avoid potentially stigmatising remarks (e.g., Borland et al., 2013; Bull et al., 2007).

3.6.2. Social class

Three studies (13.04%) have revealed differences in women's experiences and abilities to negotiate or avoid stigma based on neighbourhood deprivation. Interviews have revealed that women who smoked and were from low-income neighbourhoods were exposed to class-based pejorative associations (e.g., if they smoke, then they do not work or they are poor) and labels (*lazy or stupid*) (Antin et al., 2017; McCready et al., 2019). However, Bull et al. (2007) find that people in low-income areas were more accepting of smoking during pregnancy and parenthood regardless of their personal smoking status. They were also more likely to explain smoking during pregnancy through difficult life experiences and stress. Young women in wealthy areas reported pressure to conform to local standards of femininity and desirability while protecting their health (McCready et al., 2019). Smoking also threatened their hopes of being respectable mothers in the future. Nevertheless, they reported that smoking was tolerated and even expected in some contexts, such as festive environments (McCready et al., 2019).

3.6.3. Race and ethnicity

Researchers in two studies (8.70%) have examined smoking stigma that intersects women's racial or ethnic characteristics. Bush et al. (2003) investigate the influence of gender and culture on smoking behaviour in Bangladeshi and Pakistani communities in the United Kingdom. Participants often referred to the taboo, stigma, and non-acceptance of smoking among women. Smoking was declared to affect a woman's chances of marrying. Some men and women thought that the prevalence of smoking among young women in their communities is increasing due to Westernisation, the influence of White women, and pressures from White children in school. Young women's motivation to smoke was often centred on rebellion or expressions of independence from family and community members. More recently, Black women living in San Francisco (US) reported that smoking confirms and reinforces negative stereotypes of Black women (Antin et al., 2017). Narratives about hiding smoking were common. However, resistance and refusal to passively accept stigma were reported. Some participants liked the outsider status attributed to smokers, which makes them feel 'fucking cool' (Antin et al., 2017, p. 10). Other women reported that smoking allows them to reinforce their community membership by sharing the same behaviours as their community and experiencing the same stigma.

3.6.4. Chronic diseases

Two studies (8.70%) have presented the stigma of smoking among women with chronic diseases. Martinez Leal et al. (2021) interviewed women smokers who were receiving care for substance use disorders. They report that smoking is a coping mechanism for stress and facilitates socialisation. The women noted that stigma prevents them from quitting and that they want non-stigmatising cessation assistance. Kim and DeMarco (2022) examine the intersection of HIV-related stigma, tobacco smoking stigma, and their impact on mental health among women. The researchers find that smoking stigma is not significantly associated with either depressive or anxiety symptoms when controlling for HIV-related stigma. However, it has a moderating effect of worsening anxiety when women experience high internalised HIV-related stigma.

4. Discussion and conclusions

Studies on the stigma associated with women who smoke or use nicotine products were systematically searched in major databases without time restrictions. The results indicate that this literature is sparse and recent. Twenty qualitative and three quantitative studies have provided results on this research topic.

4.1. Smoking stigma as a regulator of femininity

According to Butler (2004), gender is built performatively through the repetition of actions such as gestures, movements, and clothing choices. Performances that do not meet gender norms may be culturally perceived as unacceptable and may result in sanctions. This review shows that women who smoke inappropriately utilise their gender, and stigma intervenes to reintegrate them into acceptable boundaries of femininity (Alexander et al., 2010; Woo, 2018). These attempts to regulate femininity originate from a variety of sources (family, internet users, health professionals, etc.) and can be classified into two types of behaviour. Explicit responses are the most frequently reported behaviours in the literature and include actions such as moralising and blaming, judging and disapproving, punishing and attacking, or avoiding and rejecting (Hookway et al., 2017). Implicit responses include behaviours such as informing and persuading (Loyal et al., 2022a). These responses may include reminding women of smoking's dangers to their health and those around them (Woo, 2018) as well as to their physical appearance (Alexander et al., 2010). These findings indicate that the stigmatisation of women's smoking is not only part of a neoliberal logic of individual responsibility for health (Hookway et al., 2017) but also part of a broader patriarchal dynamic of social control over women's bodies.

4.2. Stigma consequences

Most of the studies reviewed have indicated that women are largely aware of the negative stereotypes associated with women's smoking (Antin et al., 2017; Bull et al., 2007). As Evans-Polce et al. (2015) present, the consequences of self-stigma among smokers varies considerably across and within studies. Stigma may contribute to smokers' decision to cease smoking to avoid stigma and social exclusion (Stuber et al., 2009). However, we found only one study in which some women reported that smoking stigma motivated them to stop (Triandafilidis et al., 2017). Researchers have suggested that self-stigma is greater among those intending to quit (Brown-Johnson et al., 2015) or that exclusion leads smokers to feel more internalised stigma and to be more interested in quitting (Helweg-Larsen and Tjitra, 2021). However, in some studies, situations that stigmatize smoking have been associated with the inability to delay cigarette use (Cortland et al., 2019), higher physiological reactivity, cognitive fatigue, and self-exempting beliefs (Helweg-Larsen et al., 2019). Future research should examine the conditions under which smokers respond to stigma by ceasing rather than by resisting or remaining indifferent.

This systematic review further shows that women may use alternatives to traditional cigarettes, like e-cigarettes, as a strategy to overcome social stigma (Bowker et al., 2018; Kahr et al., 2015). This is a significant outcome in public health and can be considered, to some extent, as a 'positive effect' resulting from smoking stigma. Recent meta-analyses seem to confirm that using e-cigarettes poses fewer health risks than traditional smoking (George et al., 2019; Honeycutt et al., 2022). However, these studies highlight the possibility of as-yet-unknown long-term harmful effects due to the lack of empirical data on this technology. It is therefore legitimate to question how public health policies and the media will address these potential effects, and how public opinion regarding e-cigarettes and their users may evolve as a result. A relevant comparison to consider at present would be that of stigma and self-stigma between traditional cigarettes and e-cigarettes, especially among women who were former smokers and have now embraced e-cigarettes.

Several studies have reported that smoking stigma may be associated

with negative outcomes, such as discrimination, social isolation and stress, resistance to stopping and smoking relapse, (e.g., Borland et al., 2013; Grant et al., 2020). The studies reviewed have also suggested that the stigma associated with smoking could encourage smoking concealment to healthcare providers, in accordance with other studies (e.g., Stuber and Galea, 2009) Of note, smoking dissimulation is much higher in pregnant women (Dietz et al., 2011). Overall, the research invites attention to the fact that smoking stigma can have unintended outcomes for women smokers. This finding seems noteworthy because evidence proves that anti-smoking campaigns can unknowingly fuel smoking stigma (Bell et al., 2010; Castaldelli-Maia et al., 2016).

4.3. How do women deal with stigma?

The literature indicates that stigmatised groups, such as individuals affected by obesity, may utilise strategies to cope with stigma (Himmelstein et al., 2018). Our systematic review suggests that women primarily manage smoking stigma through behavioural and discursive strategies. Examples of behavioural strategies include selective concealment and choosing where and when to smoke (Woo, 2018). One might assume that concealment could reduce the number of cigarettes smoked. However, the sanctuaries mentioned (e.g. car, garden, etc.) could also be spaces that encourage 'binge smoking' (Woo, 2018), where women may consume—in a short period of time—the cigarettes they did not smoke elsewhere.

Smoking women also utilise discursive strategies to combat the stigma associated with smoking, the purpose of which is primarily to justify their current smoking when they are criticised by others. Women often emphasise their active adoption of risk-reduction behaviours, such as decreasing the number of cigarettes smoked, to avoid being perceived as 'bad women' or 'bad mothers' (Wigginton and Lee, 2013a). Studies have also demonstrated that certain beliefs may prevent smoking cessation, particularly among pregnant women who think that the stress associated with smoking cessation would result in greater risks for the foetus than smoking (e.g., Borland et al., 2013; Wigginton and Lee, 2013a). Future research should explore this belief and its determinants (e.g., information sources during pregnancy). In France, for example, this belief is frequent in pregnant women and new mothers (44.2%–78.2%) (Dumas, 2015; Teissier, 2017).

4.4. Intersectional stigma

It appears that women, regardless of their respective social context, often report a loss of feminine status due to smoking and its stigma (Alexander et al., 2010; Woo, 2018). As mentioned previously, women who smoke may be judged as 'bad' women because their smoking behaviour conflicts with hegemonic representations of femininity. However, as Turan et al. (2019) state, 'Stigmatised identities, while often analysed in isolation, do not exist in a vacuum' (p. 4). Because stigma may often be interrelated and interdependent, the impact of intersectional stigma is complex and generates a wide range of vulnerabilities and risks. This review suggests that women's experiences of smoking stigma require further research based on a multidimensional view of identity and stigma.

Several studies have suggested that intersecting identities shape women's experiences of smoking stigma and that this affects smoking subjectivity and practices (e.g., Antin et al., 2017; Wigginton and Lafrance, 2016). Some women report that smoking confirms or reinforces other negative stereotypes imposed by others (Antin et al., 2017; McCready et al., 2019), thus illustrating that a single social category is insufficient to explain the inequitable treatment they experience (Bowleg, 2012). Although there were similarities among the women interviewed, their experiences of smoking-related stigma were shaped by different identities that include their gender, cultural background, social class, health condition, or motherhood (Antin et al., 2017; Wigginton and Lee, 2013a). Future research is needed to better understand the intersections of other identities with smoking, such as disability, sexual orientation, or religion. Nevertheless, focussing solely on 'multiple stigmatised identities' without considering the social structures that perpetuate stigma can 'reinforce the intractability of inequity, albeit in a more detailed or nuanced way' (Bauer, 2014, p. 12). Individuals who have been historically marginalised because of their membership in specific minorities are not a problem that require intervention (Bowleg, 2022); however, the policies, laws, and interpersonal practices that lead to discrimination against them are problematic and require attention (Livingston, 2020).

4.5. Limitations

Our search strategy may have led us to omit articles that did not utilise our exact selected terms but which nevertheless contained relevant information regarding the stigma of women's smoking. One limitation is the selection of terms that emphasise negative factors such as stigma or discrimination. However, more neutral terms, such as *attitudes, beliefs,* and *perceptions*, would have been overly broad and therefore difficult to include while maintaining a reasonable scope for this study. The absence of gray literature in this study can also pose a potential publication bias that may influence the results of the review. This methodological limitation may have led us to miss unpublished relevant research, data, or perspectives that could influence the overall understanding of the subject being studied.

The qualitative literature lacks frequency estimates, which prevented us from quantifying the occurrence of certain stigma-related outcomes. Integrating quantitative estimates is often discarded by researchers who carry out this type of work (Elliott, 2018). This is partly because the quantification of qualitative data is not in line with a qualitative method where the aim is not generalization of findings to the entire population, but to get as many perspectives as possible to explore the phenomenon (Morse et al., 2011). Furthermore, quantitative data are scarce, primarily because measurement scales that specifically examine the public and internalised stigma of smoking only recently emerged in the literature (Brown-Johnson et al., 2015; Loyal et al., 2022b). We strongly encourage researchers to utilise mixed-study designs (Johnson et al., 2007) to favour mutual validation of findings and global understanding of women's experiences.

Finally, most studies included herein were conducted in Western, educated, industrialised, rich, and democratic (WEIRD) societies (Thalmayer et al., 2021). However, smoking stigma in women might be heavily influenced by social context, especially gender norms, that differs between countries. Notably, in many low- and middle-income countries, smoking prevalence rates among women are expected to increase (Woo, 2018). Thus, women's smoking and its stigmatisation will soon become an important issue worldwide.

4.6. Applied implications

The findings presented in this systematic review have implications for the development and design of interventions to address tobacco usage among women. While initiatives to de-normalise smoking may encourage some women to cease smoking, we cannot overlook the potentially negative effects on their lives, well-being, and healthcare. Thus, we must ensure that public health programmes ethically promote health equity. Moreover, anti-stigma interventions have been proven efficient regarding mental health stigma in the public (Thornicroft et al., 2016) and with healthcare providers (Lien et al., 2021). There is a paucity of research regarding the reduction of substance abuse stigma; however, future researchers should contemplate designing and implementing such interventions (Corrigan et al., 2017).

CRediT authorship contribution statement

Jean-Charles David: Conceptualization, Data curation, Formal

analysis, Funding acquisition, Methodology, Project administration, Supervision, Writing - original draft, Writing - review & editing. **David Fonte:** Methodology, Writing - review & editing. **Anne-Laure Sutter-Dallay:** Methodology, Writing - review & editing. **Marc Auriacombe:** Methodology, Writing - review & editing. **Fuschia Serre:** Methodology, Writing - review & editing. **Nicole Rascle:** Methodology, Writing - review & editing. **Deborah Loyal:** Methodology, Writing - review & editing, Conceptualization, Formal analysis, Funding acquisition, Project administration, Resources, Supervision.

Data availability

Data will be made available on request.

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