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1 A scoping review of men, masculinities and smoking behaviour: The
2 importance of settings

3

4 **Authors and Affiliation:**

5 Nurul Kodriati (NK)¹, Lisa Pursell (LP)¹, Elli Nur Hayati (ENH)²

6 ¹School of Health Sciences, National University of Ireland Galway, Ireland

7 ²Faculty of Psychology, Post Graduate Program, University of Ahmad Dahlan,
8 Yogyakarta, Indonesia

9

10

11 E-mail addresses: n.kodriati1@nuigalway.ie; lisa.pursell@nuigalway.ie;
12 elli.hayati@psy.uad.ac.id

13

14 Corresponding author:

15 Nurul Kodriati, M.Med.Sc

16 HPRC, School of Health Science, National University of Ireland Galway,
17 Ireland

18 n.kodriati1@nuigalway.ie

19 The authors declare that they have no conflict of interest.

20

21 **Abstract**

22 **Background:** In many countries, smoking rates are higher among men than women,
23 highlighting the importance of focusing on factors that influence smoking prevalence
24 among men. Expressed masculinities occur within settings that can influence men's
25 perspectives and behaviours towards smoking.

26 **Objectives:** To provide an overview of key aspects of how masculinities underpin
27 men's behaviours regarding tobacco smoking.

28 **Methods:** The Health, Illness, Men and Masculinities framework was used to
29 develop a synthesis of masculinities captured in published articles about men's
30 smoking behaviours. Five databases (PubMed, Medline Ovid, Embase, CINAHL and
31 PsychINFO Ovid) and Google Scholar (up to April 2016) were searched using
32 keywords derived from three concepts: men, smoking and health. In total, 351
33 articles that focused on smoking and used/implied masculinity concepts were
34 identified. These underwent a two-stage screening process applying
35 inclusion/exclusion criteria, first titles/abstracts and then full-text. Data from 45
36 selected articles were extracted and charted.

37 **Results:** Regions with high prevalence of smoking among men, such as Southeast
38 Asia and the Western Pacific, had a disproportionate number of studies on
39 masculinity and smoking, with less exploration of masculinity as a protective factor,
40 especially for young people, and men-specific settings to support non-smoking
41 behaviour.

42 **Conclusions:** Incorporating masculinity in future settings-based approaches to
43 smoking-related health promotion programmes has the potential to reduce smoking
44 prevalence among men.

45 **Keywords:** masculinities, smoking, scoping review, settings, health promotion

46 **Introduction**

47 Smoking remains a major public health issue worldwide [1], with a dramatic increase
48 in numbers from 721 million in 1980 to 967 million in 2012 [2]. This high prevalence
49 has led to vast numbers of health-related outcomes; for example, 143.5 million
50 Disability Adjusted Life Years in 2013 [3] and 12% of total adult mortalities were
51 attributed to smoking [4].

52

53 Ng et al. [2] found that despite the general trend of smoking prevalence being higher
54 among men than women, the ratio of men-women smokers varied across regions
55 and demographic groups. In some countries (e.g. Korea, China and Indonesia) the
56 difference is marked, with smoking among men outnumbering that among women by
57 more than 10:1. This difference remains after stratification by age group, and boys
58 were significantly more likely than girls to smoke cigarettes in many countries [5].

59

60 Despite the increased prevalence of smoking, positive changes have been noted.
61 Reductions in prevalence among men have been reported in high-income
62 countries/regions such as Canada, Hong Kong (China), Japan and Singapore [1].
63 Several trials have shown that smoking cessation rates tend to be higher for men
64 than for women [6, 7]. However, little evidence is available on whether such findings
65 reflect circumstances of the respective study populations. For example, Luo and Xie
66 [8] found that the reduction in smoking prevalence among men reported in China
67 represented a decrease in the initiation of smoking among men, rather than smoking
68 cessation. Furthermore, underlying reasons for reported smoking cessation or
69 reductions in initiation remain unclear.

70 A current focus of health promotion interventions for tobacco use involves modifying
71 the external environment, such as increasing tobacco taxes, creating smoke-free
72 environments, package warnings and advertising bans, as suggested by the World
73 Health Organization (WHO) [4]. However, such tobacco control policies have been
74 implemented among less than 40% of the world's population [9], leaving a large
75 number of people unreached and unprotected. In areas where such regulations have
76 been implemented, tobacco taxation and pricing are considered an effective
77 regulation technique for short-term effects, but evidence is lacking regarding any
78 long-term impact in reducing prevalence, especially among men [10].

79

80 Diclemente et al. argued that successes from the structural controls above might be
81 complemented by an application of behavioural theories [11]. These authors argued
82 that sustained change would only be possible if there are sufficient internal and
83 external influences. While the extension of the policy to the 60% of the world
84 population currently unprotected by policy level interventions is ideal, there remain
85 higher relative rates of smoking among men in countries where these controls exist.
86 Interventions, therefore, should also consider men's internal dynamics to
87 complement current smoking policies.

88

89 In this review, the internal dynamic focuses on masculinities, or the values
90 associated with being men. This focus was chosen because, despite the majority of
91 smokers being men, little is known about how 'being a man', as a social construct,
92 relates to smoking behaviour. In much of the literature, capturing gender as a factor
93 in smoking behaviour involves the use of a simple male/female-based assessment,
94 particularly in cross-sectional studies, resulting in such data tending to reflect

95 biological differences rather than gender's complex social constructs. In term of
96 masculinity, a growing body of literature on the nature of masculinities generally
97 accepts the term as representing multiple forms. In many cultures there is a well-
98 accepted masculine ideal, which is passed from one generation to another, even
99 though many men are not able to meet its standard entirely. Robert Brannon called
100 this ideal "culture's blueprint of manhood" [12]. Connell's [13] definition of
101 masculinities concerns the position of men in a gender hierarchy of multiple entities.
102 Interactions among these entities are complex and can be contradictory. Connell
103 argues that the majority of studies refer to hegemonic masculinities, which she
104 characterised as a dominant type of masculinity in comparison to other subordinated
105 or marginalised types. These other types are categorised by practices of
106 masculinities that vary as they interplay with other factors such as race, class, sexual
107 orientation and region, including, for example, men who are gay or have lower social
108 status. Properties and practices associated with the hegemonic type have been
109 framed as traditional masculine characteristics. These have been summarised by
110 Courtenay [14] as being more prone to risk-taking and unhealthy behaviours, as well
111 as being less willing to seek support when needing help. However, even though a
112 large number of men do not follow the hegemonic pattern, most still benefit from and
113 are complicit with the established gender hierarchy [13].

114

115 Because of this hierarchy, Kimmel [15] argued that within cultures men are invisible.
116 This, he argued, is because men are predominantly regarded as maintaining a more
117 powerful position in most societies, and as such their particular experiences are
118 considered the norm and therefore studied less frequently. However, men have
119 health problems specifically related to risk-taking behaviours, such as smoking,

120 violence and alcohol [16]. Despite this, men's health as a gendered issue has only
121 gained attention very recently. A recent WHO European region report [16]
122 acknowledged men's specific health problems resulting from the social construction
123 of their gender. On the basis of this, guiding principles and priorities for actions to
124 improve men's health were developed in the report as a means to contribute to
125 gender equality.

126

127 The characteristics of multiple masculinities share with health promotion's main
128 framework for action – the Ottawa Charter [17] – the importance of settings, thus
129 providing a clear framework for the focus of action for smoking interventions for men
130 in places where they tend to spend their time, for example, at their workplace, with
131 their family or other traditional specific settings among defined populations, such as
132 the military. In this latter setting, smoking prevalence has been found to be relatively
133 high compared to the general population [18], indicating the importance of studying
134 the impact of masculine characteristics on men's smoking behaviour.

135

136 In addition to particular settings, when considering men's health behaviours, the
137 Health, Illness, Men and Masculinities (HIMM) framework [19] offers a guide to
138 understanding how multiple masculinities intersect other social determinants of
139 health, throughout the course of life. Men experience a wide range of social diversity
140 that influences their understanding of what constitutes being a man. The HIMM
141 frames how their practised masculinities also vary in response to age, race, cultural
142 and occupational status across male lifespans. These multiple interacting factors
143 may affect smoking behaviours among men in different ways. In this report, it is
144 argued that the articulation of the complexity of masculinities and their relation to

145 smoking has the potential to provide more focused approaches to developing policy
146 and other interventions targeted towards men.

147

148 This review aims to provide an overview of key aspects of how masculinities
149 underpin men's behaviours regarding tobacco smoking. Specific objectives were to
150 conduct a systematic search of studies on smoking behaviour that incorporated or
151 implied theories of masculinities; to map out the general characteristics of included
152 studies with respect to quality, methodological approach, location, setting and age
153 group; and to identify relevant key themes that capture relationships between men's
154 smoking behaviours and masculinities. A further objective was to identify gaps in the
155 knowledge and to propose recommendations based on a deeper understanding of
156 masculinities, in relation to men's smoking behaviours.

157 **Methodology**

158 A narrative approach was taken in scoping the literature [20, 21]. The scoping
159 process followed the methodological framework proposed by Arksey and O'Malley
160 [22], and incorporated a thematic synthesis of findings from included articles.

161

162 **Search strategy**

163 A systematic search was conducted across five databases: PubMed, Medline Ovid,
164 Embase, CINAHL and PsychINFO Ovid. Additional searches were performed in
165 Google Scholar and the reference lists of previously identified articles to find more
166 recent studies (April 2016). No limitations were applied at this stage, to ensure wide
167 inclusion of available publications. The search strategy was developed by the main
168 author, in consultation with a librarian.

169 Three key concepts, “men”, “smoking” and “health”, were used to develop keywords,
170 and the process was developed in PubMed, where suitable Medical Subject
171 Headings (MeSH) terms were identified. Resultant keywords were used to retrieve
172 relevant articles (Table 1).

173 -----INSERT TABLE 1 HERE-----

174

175 Building sets of keywords and checking search results were conducted iteratively,
176 until the articles resulting from the searches were considered relevant and
177 reasonable numbers.

178

179 **Screening process**

180 Inclusion and exclusion criteria were applied to titles and abstracts, followed by full-
181 text screening. These steps were initially conducted by the main author using EPPI-
182 Reviewer 4 (V.4.5.1.0, University College London). The second and third authors
183 were consulted in cases of uncertainty about inclusion. Abstracts were considered
184 for inclusion if their main study subject concerned smoking behaviour among men
185 and/or theories of masculinities. In applying criteria, masculinity was defined as a
186 social construct experienced and expressed at a specific time, culture and locale that
187 has a significant influence on determining how men behave [13]. Articles were
188 screened for whether they contained perspectives on masculinity values in the
189 analysis, availability of full-text, the empirical nature of the study and accessibility in
190 English. Selection was not limited by the type of tobacco. Exclusion criteria were
191 irrelevant topics, unavailable abstracts or full-texts and articles in languages other
192 than English. Studies with smoking as a predictor of certain diseases or studies

193 about men that were not specifically concerned with their smoking behaviours were
194 excluded.

195

196 **Data extraction and analysis**

197 Data extraction and charting were conducted to start the synthesis and data
198 analysis. The charting extracted basic data, including year published, research
199 question(s), sample size, response rate (for quantitative studies), study population,
200 respondents' age, settings and the main results. The next step synthesised findings
201 into meaningful thematic content. Initial development of themes used MS Excel to
202 paste relevant text from articles into categories based on similarity of theme. This
203 process was underpinned by identifying life events, settings and interventions
204 specific to men, and aspects of their expressed masculinities related to smoking
205 behaviour that intersected with other health determinants, such as age, race,
206 geography and education, as described by the HIMM framework. The categories
207 were coded, and their contents reviewed as an iterative process. Latent terms were
208 posed for the groupings, taking account of the structure of the HIMM framework.
209 Notes were taken where categories intersected or diverged. This process was
210 primarily undertaken by NK. Figure 1 presents examples of statements from
211 reviewed articles that are illustrative of the sub and main themes. Reviewing of
212 categories and rereading of manuscripts formed an iterative process conducted by
213 NK with consultation throughout where any ambiguities arose with LP and ENH. No
214 other software was employed in this process.

215

-----INSERT FIGURE 1 HERE-----

216

217 Quality of included qualitative and quantitative articles was assessed using the
218 critical appraisal instrument developed by Hawker et al. [23]. The instrument
219 comprises nine quality criteria (abstract and title, introduction and aims, method and
220 data, sampling, data analysis, ethics and bias, results, transferability/generalisability
221 and implications and usefulness). Each criterion has four score options (0-3)
222 corresponding to very poor, poor, fair and good. Total scores vary from 0-27. In this
223 review, these scores were classified into three quality groups: low (<10), medium
224 (10-18) and high (>18).

225

226 **Results**

227 Figure 2 shows the outcomes of the search process. In total, 351 articles were
228 retrieved; 40 were excluded because of duplication. An additional 30 articles were
229 identified by searching Google Scholar and the reference lists of previously identified
230 articles.

231 -----INSERT FIGURE 2 HERE-----

232

233 Selection based on the title and abstract screening excluded a further 279 articles,
234 resulting in 62 articles eligible for full-text screening. Following full-text screening, 17
235 articles were excluded, leaving 45 articles for inclusion in the review. The results of
236 the quality assessment showed that two articles out of 45 were of medium quality,
237 and all others were of high quality.

238

239 **General characteristics**

240 A summary of the general characteristics of the included studies is presented in
241 Table 2. Most studies were conducted in the region of the Americas (53.3%), with

242 only one each in Africa and Southeast Asia. There was an increasing trend of
243 research focusing on masculinity and smoking behaviour over the last 30 years,
244 peaking during 2007-2016 (62.2%). The earliest of the included studies was
245 conducted in 1990 in Kenya, Africa. All studies focused almost exclusively on
246 smoking tobacco, with only one smokeless tobacco study included.

247

248 A majority of the included studies were qualitative, providing different levels of
249 findings, including ethnographic data derived from exploration of photographs and
250 magazine articles. The targeted populations were evenly spread across age groups,
251 although only 5 out of 45 studies focused on boys (teenagers). One study with
252 women respondents was included, because it aimed to understand men's smoking
253 behaviour from the perspective of women. The included quantitative studies focused
254 on smoking among men, with varying emphasis on smoking behaviours. Some
255 focused on special life events for men; for example, the transition towards becoming
256 a father. Two were specifically designed to collect information in places
257 characterised as having strong masculinity values (e.g. military camps). All included
258 quantitative studies recruited respondents aged 18 years and over.

259 -----INSERT TABLE 2 HERE-----

260

261 The study populations provided rich accounts of how masculinities varied across the
262 life course and their differing relationship to men's smoking behaviours. A large
263 proportion of these accounts were dedicated to understanding the adult compared to
264 the younger population of men. Most were conducted in community settings (64.4%).
265 The lowest percentage comprised studies conducted in educational settings (school
266 or training), followed by health services (28.9%).

267 **Key themes**

268 Following the contextualisation of this review within the theoretical HIMM framework
269 key themes identified, representing how different aspects of masculinities relate to
270 men's smoking behaviours, were *belief about masculine characteristics (BMC)*,
271 *external discouragement to smoke (EDS)*, *external encouragement to smoke (EES)*,
272 *psychological attachment (PA)* and *the life maturation effect (LME)*.

273

274 The first key theme BMC forms a starting point to understand smoking behaviour in
275 the context of the HIMM framework, as it underpins much of the relationship between
276 men's external and internal influencers regarding smoking. Robert Brannon's [12]
277 phrase "culture's blueprint of manhood" is used within this theme, to represent how
278 this blueprint has been captured and strengthened in popular media [24], then used
279 to reinforce acceptance of smoking among men [25, 26]. Reciprocally, some men
280 perceived smoking as a signifier of their masculinity [27, 28, 29] by not displaying
281 "feminine and weak" attributes where there are cultural prohibitions on women
282 smoking [28] and by young men perceiving it as a route to their adulthood [30]. Gay
283 men also perceived smoking as part of their identity, feeling it made them appear
284 more attractive [31].

285

286 The BMC theme underpins the way men respond to their social environment and the
287 stressors within it, as captured by the themes EDS, EES and PA, and therefore
288 interacts with them. BMC itself is a dynamic that changes along men's course of life,
289 as reflected in its interaction with the theme LME.

290

291 The second and third key themes identified as EDS and EES reflect how external
292 environments have shaped and influenced men's decisions both positively and
293 negatively on whether to smoke or not. These capture situations where men
294 perceived the need to smoke in order to be accepted by their peers, or conversely to
295 avoid smoking where it does not fit within their family's or society's value systems.
296 However, the external environment was mainly portrayed as a factor that
297 encourages men to smoke. In such circumstances, men tend to conform to maintain
298 social harmony [26, 28, 32], and enable engagement in certain groups [32], for
299 example, among students [33, 34], military men [35] or gay men [31].

300

301 Some men depended on smoking to start or maintain interactions with others, and
302 this influenced their smoking behaviour in three ways. First, in regions where
303 smoking prevalence is high (e.g. China and Indonesia), it forms an important part of
304 men's social interactions [26, 28]. Second, some men maintained the influence of
305 their previous social interactions after migrating to a different country by smoking, to
306 keep a sense of their cultural identity [36]. Third, younger men or those with lower
307 social status emulated prevalent smoking behaviours among adults or among people
308 with higher social status, to help them to feel more socially acceptable [30]. The
309 settings in which men experienced masculinities that influenced their smoking
310 behaviour in both themes involved interactions with family and within cultural groups,
311 where it was used as a means of maintaining inclusion.

312

313 The fourth theme, identified as PA, captures internal drivers for smoking among
314 men. It denotes the influence of the internalisation of more harmful aspects of
315 masculinity in relation to their smoking. The theme also captures how, throughout

316 their course of life, men may rationalise their smoking behaviour in complex ways
317 that involve self-narratives about their attachment to smoking, to cope with stressful
318 life circumstances [28, 37, 38]. School-aged boys perceived smoking as a means of
319 coping with school-related stress, feeling it calmed them [26, 28]. During adulthood,
320 smoking was thought to be necessary to maintain the emotional stability required for
321 being a man and to cope with work-related stress [29, 35, 39], and during difficult
322 periods of adapting to a new role as a father [27]. Additionally, men's partners may
323 encourage smoking to acknowledge or reward them for being a good father [40] and
324 as a means of reducing any negative behaviours that arise when their partners
325 attempt to quit [27]. The settings from which this theme was derived involved adult
326 men and boys engaging with perceived stressful demands in various places such as
327 schools, workplaces and the home, which shows the relevance of discussing stress
328 within settings in relation to smoking among men.

329

330 Lastly, the LME represents the dynamic nature of masculinity, often expressed as
331 needing a more moderate smoking behaviour as men age. This theme captures the
332 phenomena of young men holding a belief that they have physical resilience to the
333 harmful effect of smoking [27, 28, 32], then starting to re-evaluate their smoking-
334 related behaviours when they enter fatherhood and living modestly in keeping with
335 their age as they get older [38]. When smoking is perceived as such an integral part
336 of being a man, even a new role that is considered to be incompatible with smoking,
337 such as being a father, may not necessarily lead men to quit smoking [27]. The
338 settings for this theme were inevitably dependent on the stage of life, with the school
339 setting being important in boys' interactions with their peers. and the family, home
340 and workplace being of importance later in life.

341 **Discussion**

342 This review adopted a narrative approach to scoping the literature, enabling
343 examination of a topic that is heterogeneous in nature that has not previously been
344 extensively reviewed [41]. It aimed to identify key aspects of masculinities that
345 underpin men's tobacco smoking behaviours. Arksey and O'Malley [22] systematic
346 approach to scoping literature is a widely used guide [42, 43] for such reviews, and
347 its use enabled mapping of the characteristics and quality of relevant published
348 studies and identification of significant gaps in the literature. Unlike systematic
349 reviews, assessment of quality is debatable in a scoping review and is, therefore,
350 less frequently performed [41]. Its use in the current review illustrated the good
351 quality of the literature featured. Incorporation of a thematic synthesis enabled the
352 identification of key themes relating aspects of masculinities and smoking behaviours
353 among men.

354

355 **General characteristics of the studies**

356 Mapping the characteristics of the studies shows that the inclusion of masculinities
357 within smoking studies is a relatively new approach that has only gained momentum
358 as a distinct research activity in recent years. Given how recent this focus has been,
359 it is not surprising that it has been limited to certain regions, age groups and settings.
360 Included articles tended to focus mostly in the north-western region, particularly the
361 Americas. This region is referred to as metropole by Connell [44] and described as
362 "former imperial powers with continuing postcolonial connections, and the centres of
363 military, communication and intelligence networks", remaining the main source of
364 current theories and knowledge bases. In order to assess how smoking behaviours
365 and the diverse adoption, rejection or adaptation of historically promoted

366 masculinities and their more recent influence by neoliberal globalisation interact as
367 social determinants of health in countries of the south-eastern region, as oppose to
368 the north-western, a greater focus on their current sociocultural perspectives is
369 necessary. This is particularly important, as approaches to interventions still
370 predominantly derive from the north-western region.

371

372 **Key themes**

373 Most studies reviewed associated smoking with the traditional masculine
374 characteristics as defined by Courtenay [14]. These characteristics often describe
375 hegemonic masculinity, a type of masculinity that legitimates men's dominant
376 position relative not only to women but also to other subordinated masculinities [13].
377 In this context, men reported in those articles often associated their smoking
378 behaviour with characteristics such as being powerful [26], being emotionally stable
379 [27], being in control [29] and having self-reliance [29]. This review suggested that
380 these masculine-related characteristics and men's beliefs about them are
381 fundamental aspects in understanding why smoking prevalence is much higher in
382 certain age groups and how men use smoking to cope with stress and deal with their
383 social environment, as described in the themes of life maturation effect,
384 psychological attachment and external encouragement/discouragement to smoke.

385

386 In light of Kimmel's [45] argument regarding the invisibility of men in studies in
387 general, it is not surprising that this review identified a paucity of smoking studies
388 related to men and masculinities. This persisted, despite smoking prevalence having
389 been much higher among men in many countries for decades [46]. In this context,
390 the qualitative studies reviewed contribute important perspectives on how men relate
391 their smoking behaviour with their masculinities. Of note is that some men define

392 their masculinity by being different from women and attach to a traditional
393 masculinised ideal of smoking to support their expression of masculinity [26, 28].

394

395 Among the few studies on smoking and masculinity, aspects of the hegemonic type
396 has been their main focus, even though few men can fulfil this standard, putting them
397 in subordinated or marginalised positions relative to its idealised characteristics [13].
398 From the studies reviewed, it is unclear how these other forms of masculinities affect
399 men's smoking behaviour, as only one article focusing on gay men [31] represented
400 a subordinated masculinity. However, the findings of that study were similar to those
401 associated with hegemonic masculinity in that its respondents perceived smoking as
402 part of the male gay scene [31].

403

404 Despite men being studied only rarely as a subgroup of the population [15], their
405 smoking problem needs to be addressed to the same extent as women, particularly
406 in relation to smoking. This is especially so in the context that while smoking among
407 men is more than five times higher than among women [2], men are not always the
408 direct smokers. In fact, the prevalence of experiencing second-hand smoke derived
409 from 192 countries is 34% and 33% for women and men, respectively [47]. Thus, the
410 total burden of second-hand plus first-hand smoking for men is extremely high. While
411 there has been a change in patterns for both men and women [48], failure to
412 consider the relative prevalence of smoking between these groups will result in any
413 attempt to differentiate gendered smoking patterns being misleading, and diverts
414 from seeing the main burden of smoking, which is more prominent among men
415 rather than women.

416

417 It is unclear whether the practice of second-hand smoking among men could be
418 considered complicit masculinity (they do not smoke but do not stop their colleagues
419 from smoking) or subordinate masculinity (they do not meet the standard of
420 hegemonic masculinity). Alternatively, second-hand smoking might be framed as an
421 expression of hegemonic masculinity, in a positive way, by representing those who
422 have willpower, commitment and authority to decide not to smoke and not to be
423 influenced by their environment, as an interpretation of hegemonic masculinity does
424 not always indicate hierarchy [49]. Such research would be interesting to conduct in
425 settings representing the traditional values of hegemonic masculinity, such as the
426 military, where exploration of smokers and non-smokers in relation to aspects of their
427 masculinities could be a valuable contribution to the knowledge of this area,
428 particularly for framing and presenting health messages for men related to smoking
429 behaviours.

430

431 In terms of incorporating aspects of masculinities into programmes within different
432 cultural settings, some programmes have been established to engage with men to
433 prevent domestic violence. Rutgers's Mencare+ programme [50] and Promundo's
434 International Men and Gender Equality Survey (IMAGES) [51] are illustrative
435 approaches to incorporating an understanding of men's attitudes, areas of resistance
436 and mapping of continuing challenges of engaging men and boys in order to
437 advance gender equality. A similar approach could be adopted for smoking
438 cessation programmes.

439

440 Given that men's unique circumstances influence what they are, a deeper
441 understanding of the social construction underpinning gendered differences requires

442 a translation of how constructs of masculinities contextually produce different
443 perceptions, identities and behaviours towards smoking between men and women.
444 For population-based surveys this requires well-designed methodology incorporating
445 questions capturing masculine characteristics, as reflected by the key themes in this
446 study. Thus, a well conceptualised masculinity study on smoking might also consider
447 conducting such surveys in a specific setting representing hegemonic masculinity,
448 such as military camps. A deeper understanding of masculinities will also consider
449 critical stages of men's life, such as fatherhood, to complement smoking studies,
450 focusing on different ages or how certain occupations might impact fathers'
451 involvement with their children and development of their father identity, to protect
452 their children from the harm of second-hand smoking [52].

453

454 A survey of men that was conducted across some countries in the Asian Pacific
455 region incorporating aspects of masculinity characteristics was conducted as part of
456 Rutgers's Mencare+ IMAGES collaboration. However, only the Indonesian sample
457 included questions on smoking [53]. To enhance research into quantitative aspects
458 of smoking and masculinities, an extension of such surveys with the inclusion of
459 smoking-related questions in other countries would be beneficial in providing health
460 authorities with data relevant to targeting cessation programmes among men.
461 Aspects of the key themes identified in this review need to be incorporated into
462 surveys, to explore the link between masculine characteristics and smoking
463 prevalence, particularly in cultural groups where these are very high among men.

464

465 The HIMM's framing of masculinities interacting with other health determinants
466 underpin the themes EES and EDS, in relation to men's external environments, and

467 the theme of PA in relation to their internal drivers. Important findings related to
468 factors that were instrumental in men's smoking behaviours were captured in these
469 themes. Internal self-narratives formed by men's beliefs about masculine
470 characteristics were instrumental in men's decisions to smoke. These narratives
471 impact men's coping and interactional skills within their external environments,
472 resulting in a lack of healthy coping strategies and low social skills that instrumentally
473 mediate men's smoking behaviours. This was illustrated by Kim's study [30] where
474 men depended on smoking to initiate or maintain interactions with others. This
475 dependence also indirectly reflects their capacity to reject smoking in their social
476 settings.

477

478 Similarly, Andretta et al. (2016) reported low social skills among drug users, with
479 men's social interaction skills significantly lower in comparison to women. This
480 highlights the need for studies on smoking among men to include aspects of social
481 skills, to determine which operate to encourage or discourage smoking within
482 different cultural settings, as a preliminary round to develop more nuanced
483 interventions incorporating the enhancement of men's social skills. Environments
484 could influence men's smoking behaviour positively. In this study, parents play a role
485 in at least delaying boys from smoking, and spouses often have different strategies
486 to regulate men's smoking behaviour. Practising certain religions could also
487 beneficially help men to consider their smoking behaviour; for example, Korean men
488 who were practising Christians smoked less than those who were not [54]. The use
489 of tobacco has been debatable among Muslims, as scholastic rules stipulate that
490 Muslims are discouraged (*mukrooh*) or prohibited (*haram*) from smoking. However,
491 there is no halal (permissible) certification in any cigarette. Therefore, it is also

492 important to bring the discussion and research into religious settings to understand
493 how to optimise men's beliefs to motivate them to stop smoking.

494

495 That some men perceived smoking as a part of their coping strategies for stress
496 reduction [55], supports their traditional beliefs about masculine characteristics of not
497 requesting help from others, keeping their emotions stable, while expanding and
498 maintaining their social networks. Both smoking initiation and maintenance were also
499 perceived as a way of alleviating stress among individuals during men's early
500 adulthood [26, 28], indicating unhealthy coping strategies. This highlights that
501 interventions directed towards smoking cessation or prevention should not overlook
502 these instrumental factors. Studies, therefore, need to explore alternative positive
503 coping strategies among men smokers. A study by Bindu, Sharma [56] had started
504 this exploration among men smokers in India, and reported that among those who
505 perceived their stress to be high, problem-solving, positive distraction, acceptance
506 and faith were used as protective coping strategies. Larger scale and more robust
507 studies within regions of high smoking prevalence among men need to be
508 conducted, to determine the extent and value of such coping strategies within
509 different cultural settings.

510

511 Several articles included phenomena that depicted men's beliefs about their
512 masculinities at different developmental stages in the course of life [26, 28, 38, 57].
513 These were captured in the theme of LME, reflecting how behaviours and
514 perceptions regarding smoking changed with age. The belief of young men to have
515 physical resilience to the harmful effect of smoking was supported by a systematic
516 review study of smoking initiation among Asian adolescents. Boys (ages 10-14) were

517 more likely to have initiated smoking, and the majority had their first experienced in
518 junior high [58]. Smoking studies or interventions incorporating masculinity will
519 require consideration of different stages of men's life course. This knowledge could
520 be translated into age-appropriate masculinity scripted messages regarding
521 smoking, such as during adolescence, could focus on messages of physical fitness
522 [59], and during their productive ages on being a good provider. While for older men,
523 a focus on independence and autonomy, to avoid dependence on others may be
524 more appropriate [60].

525

526 Given that many men initiate their smoking behaviour while young [61], it is important
527 to develop interventions that are appropriate to that age. Studies or interventions
528 focusing on boys might develop their programmes within school settings with strong
529 contextualisation of their indestructible young age values. Boys like to develop their
530 body strength, and therefore physical activity might be an important aspect to be
531 employed, as it serves as a protective factor against smoking [59].

532

533 **Gaps and recommendations**

534 The systematic search employed in this review made it possible to identify significant
535 gaps in the literature. Four significant gaps were identified in the literature. Firstly, as
536 this review did not limit its search by geographical area, we could identify that
537 regions with a high gender prevalence ratio (men-women) outside of the Americas
538 were very under-represented. Secondly, there was little exploration of masculinities
539 as protective factors against smoking for men; those that did were limited to focusing
540 on impacts of men becoming fathers. Thirdly, very few studies incorporated
541 instrumental aspects of smoking behaviour among men, such as smoking, as a

542 stress-reducing strategy or means of social interaction. Fourthly, there was a lack of
543 literature on smoking interventions focusing specifically on men.

544

545 In terms of geographical area, very few studies focused on countries of the south-
546 eastern region as described above or the consequences of constructed masculinities
547 in that region to smoking behaviours among men. Of particular note, regions with a
548 high prevalence of men smoking, such as Southeast Asia and the Western Pacific,
549 had produced few articles on masculinity and smoking. Despite a male-female
550 smoking ratio in Southeast Asia of 16:1 [46], only one article identified in this review
551 concerned this region. This gap underpins the first recommendation, which calls for
552 more studies on masculinity and smoking in countries where smoking among men is
553 much more prevalent than among females.

554

555 Second, focus on aspects of masculinities as a protective factor against smoking is
556 required. A main protective factor highlighted in the reviewed studies was
557 fatherhood. However, the exploration of other potential aspects of masculinities that
558 might serve as protective factors against smoking among men is necessary.

559

560 Third, the included studies indicated some men perceive the need to smoke in order
561 to engage in social interactions, and to cope with stressors. This highlights the third
562 recommendation that smoking studies and interventions need to incorporate aspects
563 of healthy coping mechanisms and social skills as integral parts of smoking control
564 and interventions among men.

565

566 Fourth, interventions need to be designed specifically for men, as they have the
567 potential to accelerate smoking cessation among men, due to their responsiveness
568 to those smoking interventions [6, 7]. Assisted “quit smoking” programmes and
569 counselling need to be adjusted with regards to masculinity values, as some men will
570 prefer quitting unassisted and lay knowledge gained directly from personal
571 experience and rely on their own motivation, willpower and commitment, which
572 reflects their self-identity [62, 63].

573

574 **Strength and limitations of this scoping review**

575 The inclusion of qualitative articles as the main type of study in this review provided
576 an in-depth view to gain a better understanding of interconnections between
577 masculinities and smoking behaviours. The review limits its relevance to wider
578 settings, due to the inclusion of English-only articles. An ideal situation would be to
579 include studies employing languages other than English. However, we limited our
580 study to English-based manuscripts, as it is the main language used for scientific
581 publication. On the basis that it potentially provides many studies from across the
582 world; various cultures represented in the studies reviewed were originally from a
583 range of different countries, so to some extent this was achieved. The local cultures
584 represented in the reviewed studies were from several different cultural groups that
585 had not necessarily originated in the study location. The extent to which these
586 represent their cultural origins could not be discerned; however, there was a
587 surprisingly similar adoption of smoking as a representation of hegemonic
588 masculinity, regardless of whether the cultural group had moved to other locations or
589 were in their country of origin. The review particularly underrepresents studies from

590 south-eastern regions, and this was identified as a significant gap in the literature in
591 a region where the highest prevalence of smoking occurs among men.

592 **Conclusion**

593 Despite having an extremely wide prevalence of first-hand and second-hand
594 smoking, studies and interventions targeting men are considered to be very limited.
595 This is evident in that men, indeed, are invisible, as argued by Kimmel [15]. The
596 most significant contribution of this review is to understand the underlying reason for
597 smoking problems among men, by employing the multiple concepts of masculinity
598 theories. This review, therefore, provides an initial step in drawing the attention of the
599 international scientific community to the relationship between smoking and
600 masculinities.

601

602 It is clear that smoking is a signifier and an influencer of the dynamics of masculinity
603 throughout men's course of life. As such, their decisions on smoking are influenced
604 by their understandings of what constitutes appropriate masculine behaviour. The
605 dynamics of this relationship operate within particular settings. This highlights the
606 importance of supportive settings in enhancing and promoting aspects of
607 masculinities that are protective against smoking throughout men's course of life.

608

609 Regions with a high prevalence of men smoking, such as Southeast Asia and the
610 Western Pacific, have a disproportionately low number of articles on masculinity and
611 smoking. Even in those regions covered by articles in this review, there is little
612 exploration of masculinity as a protective factor (especially among children and
613 adolescents). Given the cultural and temporal dynamics of constructed masculinities,

614 there is a need for studies in these areas as a means of incorporating culturally
615 appropriate masculinities in settings-based approaches to smoking-related health
616 promotion programmes, as a catalyst for reducing smoking prevalence among men
617 in such regions.

618 **End materials**

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622

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624 Nurul Kodriati: design and implementation of the review, conceptualisation of the
625 article, drafting, revising and finalising the article.

626 Lisa Pursell: advised the studies inclusion, reviewed the article prior to submission.

627 Elli Nur Hayati: provided materials and contextual information, reviewed the article
628 prior to submission.

629

630 **Disclosure statement**

631 'Nurul Kodriati, Lisa Pursell and Elli Nur Hayati declare that there is no conflict of
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633

634 **Ethics and consent**

635 N/A

636

637

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642

643 **Paper context**

644 Despite its high prevalence, smoking among men is not a priority when developing
645 studies and intervention. This review attempts to synthesise current findings for
646 studies on smoking and masculinities, providing a thorough understanding of the
647 possible implementation of masculinity into smoking studies. This study will provide a
648 new perspective on smoking problems, to complement current smoking policies.

649

650 **ORCID**

651 0000-0003-2417-3590

652

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789

Table 1 Keywords employed in each database during the literature search

No	Keywords	No	Keywords
1	Men	9	"Health literacy"
2	Man	10	"Health education"
3	Masculinity	11	"Health knowledge, attitudes, practice"
4	Smoking	12	1-3/OR
5	"Tobacco use"	13	4-6/OR
6	"Smoking cessation"	14	7-11/OR
7	"Health behaviour"	15	12 AND 13 AND 14
8	"Health promotion"		

Source: Databases (PubMed, Medline Ovid, Embase, CINAHL and PsychINFO Ovid) and Google Scholar.

Table 2 Summary of characteristics of included studies

No	Author (year)	Region	Age Group	Settings	Key themes
1	Cronan, Conway (1991)	The Americas	Adult	Education	BMC, EES, PA
2	Everett, Gage (2005)	The Americas	Adult	Community	LME
3	Everett, Bullock (2007)	The Americas	Adult	Community	LME
4	Maxwell, Garcia (2007)	The Americas	Adult	Community	EES
5	Kim (2008)	The Americas	Adult	Community	EDS
6	Badr and Moody (2005)	Eastern Mediterranea	Adult	Workplace	BMC
7	Nazary, Ahmadi (2010)	Eastern Mediterranea	Adult	Education	EES
8	Gao, Zheng (2011)	Western Pacific	Adult	Workplace	EDS
9	Lin and Sloan (2015)	Western Pacific	Adult	Community	LME
10	Loke, Mak (2012)	Western Pacific	Adult	Health services	LME
11	Stanton (2004)	Western Pacific	Adult	Health services	LME
12	Blackburn, Bonas (2005)	European	Adult	Community	LME
13	Schei and Sogaard (1994)	European	Adult	Workplace	BMC
14	Kaplan, Carriker (1990)	Africa	Adult	Community	EES, LME
15	Greaves, Oliffe (2010)	The Americas	Adult	Community	EES, LME
16	Bottorff, Oliffe (2006)	The Americas	Adult	Community	BMC, LME, EES, PA
17	Bottorff, Radsma (2009)	The Americas	Adult	Health services	BMC, PA, LME
18	Bottorff, Oliffe (2010)	The Americas	Adult	Health services	EDS, BMC, PA, EES
19	DeSantis (2002)	The Americas	Adult	Community	BMC, PA
20	Dutta and Boyd (2007)	The Americas	Adult	Community	BMC
21	Johnson, Oliffe (2009)	The Americas	Adult	Health services	BMC, EES
22	Kim, Son (2005)	The Americas	Adult	Health services	BMC, EES, EDS
23	Kim and Nam (2005)	The Americas	Adult	Community	EDS, EES, LME
24	Kwon, Oliffe (2014)	The Americas	Adult	Health services	BMC, LME, PA

25	Kwon, Oliffe (2014)	The Americas	Adult	Health services	BMC, EDS, LME
26	Oliffe, Bottorff (2008)	The Americas	Adult	Health services	BMC, PA
27	Oliffe, Bottorff (2010)	The Americas	Adult	Health services	BMC, EES, PA
28	Oliffe, Bottorff (2012)	The Americas	Adult	Community	BMC, PA, LME
29	Kim, Son (2005)	The Americas	Adult	Community	EES, LME, PA
30	Tu and Walsh (2000)	The Americas	Adult	Community	BMC
31	Ng, Weinehall (2007)	South East Asia	Adolescent	Community	BMC, EES, LME, EDS, PA
32	Davey and Zhao (2012)	Western Pacific	Adolescent	Education	EES, PA, BMC,
33	Wakefield, Reid (1998)	Western Pacific	Adult	Health services	LME, BMC
34	O'Brien, Hunt (2009)	European	Adult	Community	BMC, LME
35	Cortese and Ling (2011)	The Americas	Adult	Community	BMC
36	Cable, Meland (1999)	European	Adult	Community	PA, EES, LME
37	Ziebland and Fuller (2001)	European	Adult	Health services	LME
38	Schwappach (2009)	European	Adult	Community	EES
39	Valera, Cook (2014)	The Americas	Adult	Community	EDS
40	White, Oliffe (2012)	The Americas	Adult	Community	LME
41	Bottorff, Haines-Saah (2012)	The Americas	Undefined	Community	BMC, EES, EDS,
42	Morrow and Barraclough (2010)	Western Pacific	Undefined	Community	BMC, LME
43	Okoli, Torchalla (2011)	The Americas	Undefined	Health services	NA
44	Bottorff, Haines-Saah (2014)	The Americas	Undefined	Community	BMC, LME, EES
45	Roberts (2006)	European	Undefined	Community	BMC

Themes BMC: Masculine Branding; EDS: External Discouragement to smoke; EES: External Encouragement to smoke; PA: Psychological Attachment; LME: The Life Maturation Effect

Regions were based on UN categorisation

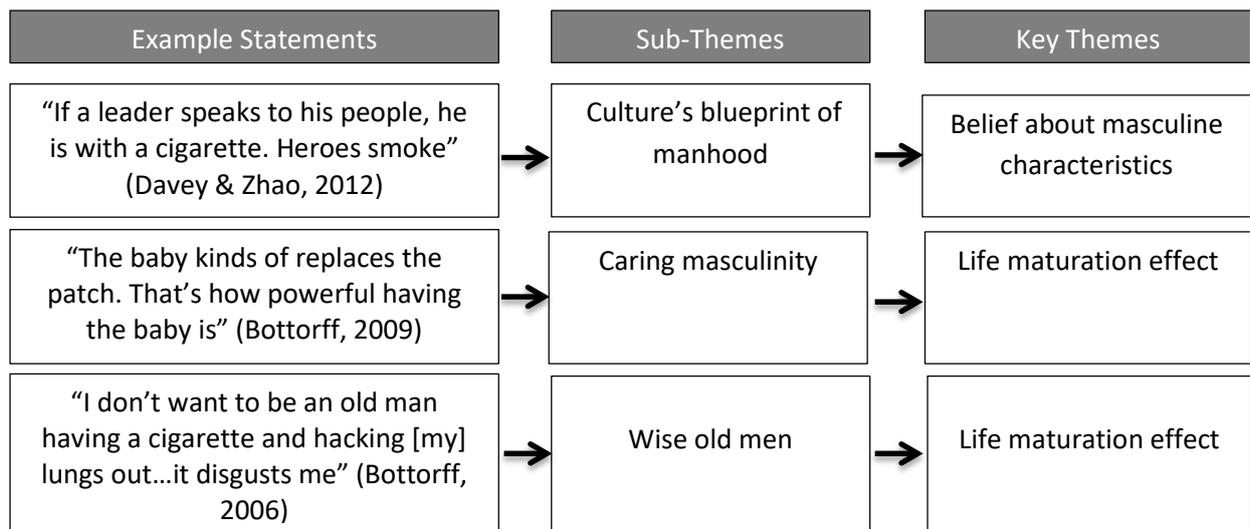


Fig. 1. Example of the emergence of themes and sub-themes from related statements

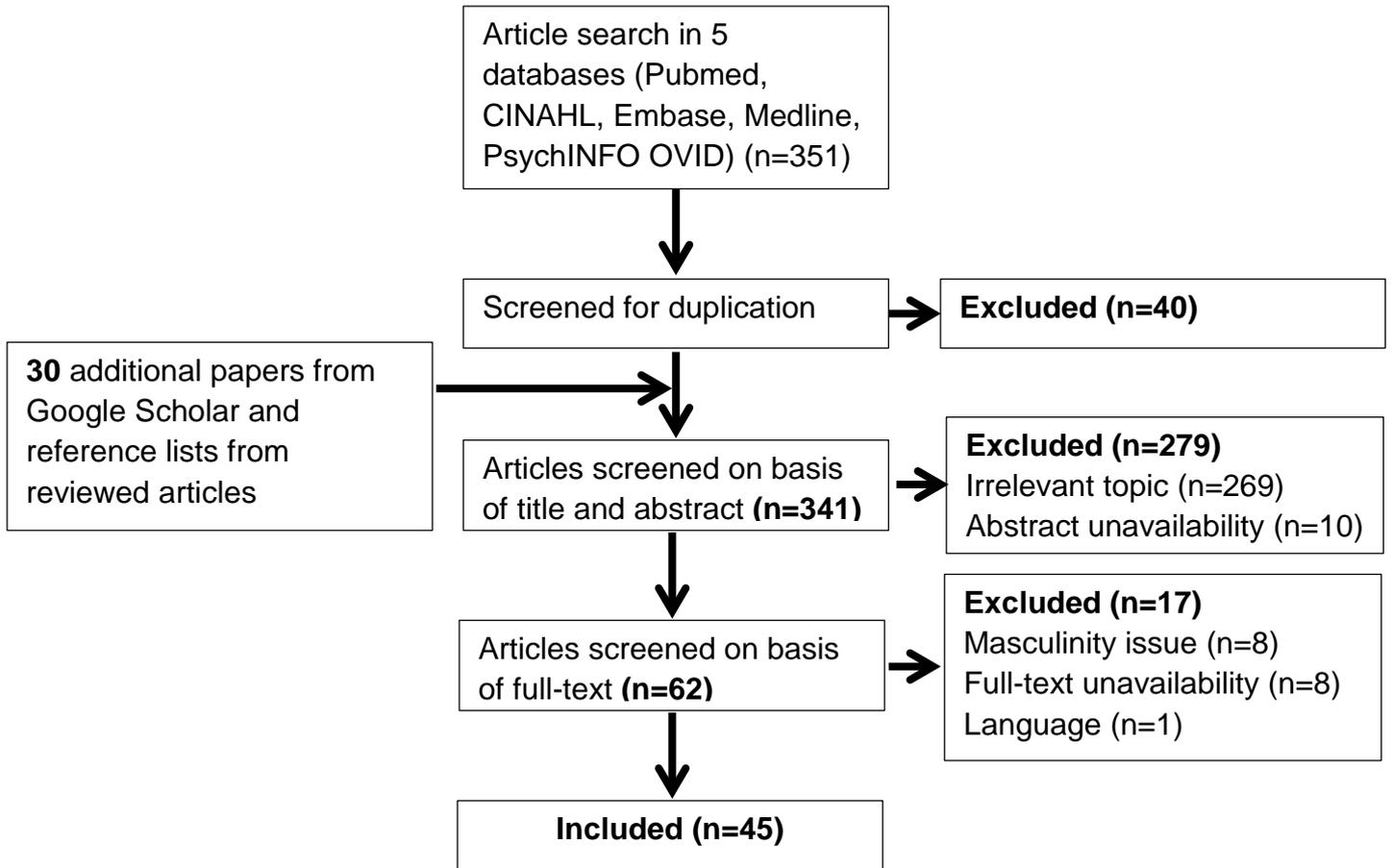


Fig. 22. Flow Diagram of articles identified and selected