

## Front sheet

### **The experience of initiating injection drug use and its social context: A qualitative systematic review and thematic synthesis**

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## Abstract

**Background and aim:** Understanding the experience of initiating injection drug use and its social contexts is crucial to inform efforts to prevent transitions into this mode of drug consumption and support harm reduction. We systematically reviewed and synthesized existing qualitative scientific literature to identify the socio-structural contexts for, and experiences of, the initiation of injection drug use.

**Methods:** We systematically searched six databases (Medline, Embase, PsychINFO, CINAHL, IBSS, and SSCI), along with a manual search, including of key journals and subject experts. Peer-reviewed studies were included if they qualitatively explored experiences of or socio-structural contexts for injection drug use initiation. A thematic synthesis approach was used to identify descriptive and analytical themes across studies.

**Results:** From 1731 initial results, 41 studies reporting data from 1996 participants were included. We developed eight descriptive themes and two analytical (higher order) themes. The first analytical theme focused on injecting initiation resulting from a social process enabled and constrained by socio-structural factors: social networks and individual interactions, socialization into drug-using identities, and choices enabled and constrained by social context all combine to produce processes of injection initiation. The second analytical theme addressed pathways that explore varying meanings attached to injection initiation and how they link to social context: seeking pleasure, responses to increasing tolerance to drugs, securing belonging and identity, and coping with pain and trauma.

**Conclusions:** Qualitative research shows that injection drug use initiation has varying and distinct meanings for individuals involved and is a dynamic process shaped by social and structural factors.

Interventions should therefore respond to the socio-structural influences on injecting drug use initiation by seeking to modify the contexts for initiation, rather than solely prioritizing the reduction of individual harms through behavior change.

**Key words:** *Systematic review, qualitative synthesis, thematic synthesis, injection drug use, injection initiation, drug use, trajectories, transitions*

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## INTRODUCTION

Twelve million people inject drugs globally (1) and, with limited access to harm reduction services (2), face vulnerability to poor health and social outcomes (3-5). Patterns of drug injecting are evolving: injection drug use is increasing in some areas and populations that have historically reported low prevalence (e.g., Sub-Saharan Africa (6), white rural populations in North America (7, 8)). There has long been interest in preventing transitions to drug injecting (9, 10), though the effectiveness of interventions has been limited according to scientific evaluations conducted to date (11). There is therefore a need to further develop understanding of injection drug use initiation to inform interventions and policy responses.

Quantitative studies of injection drug use initiation have explored a range of factors linked to injection initiation, including shifts in the drug supply, drugs used, unemployment, family disruption, homelessness, incarceration and social networks (12-19). Whilst quantitative studies can detect relationships between individual, social and structural factors and injection initiation, they are less appropriate for addressing the 'why' questions underpinning these relationships. Qualitative research offers unique complementary insights by enabling in-depth exploration of how injection initiation is experienced, for example: the meanings and identities it can bring, and how initiation is shaped by contextual factors (20). A synthesis of this qualitative literature would help elucidate the frequently complex pathways by which individual experiences, discrete factors and contexts combine (21, 22).

We aimed to systematically review and synthesize qualitative literature on the experience of, and social context for, injection initiation. We were guided by the overarching question, '*why do people initiate the injection of drugs?*' and two sub-questions: '*what are the social and structural contexts*

*for injection initiation? What role do family, friends and others play in influencing the context of injection initiation?*

Drawing on frameworks from the study of drug dependency and harm reduction, as well as social theories regarding 'structural vulnerability' and 'risk environments' our review considers individuals' behavior as a product of the interaction between one's capacity to act intentionally and independently (i.e. one's agency) and the fixed environment (i.e. structure) (22-26). Following this literature, we delineate an individual's lived environment as having social, economic, spatial, and policy dimensions operating at micro, meso and macro levels (25). Thus, we understand injection initiation as arising from interactions between individual agency and the constraints and opportunities afforded within these overlapping environments (22), which can vary across populations due to the intersection of individual characteristics and social-structural inequities. The specific links between structure and agency we understand as 'pathways'; here, the concept of a pathway indicates a causal process or relationship in which individuals both respond to, as well as create and modify, social and structural contexts, albeit in complex and potentially non-linear ways (23). We used this overarching theoretical framing - of social and structural factors forming pathways with individual agency to produce injection initiation - to explore and elucidate the empirical findings of qualitative research in this area.

## **METHODS**

We employed a thematic synthesis approach in order to develop concepts and theory of relevance to policy and intervention development (27-29). We were guided by the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) protocol (30), although we developed and documented the review using the *Enhancing transparency in reporting the synthesis of qualitative research* (ENTREQ) statement (31, see supplementary file 1).

## Search strategy

We combined database and manual searches to ensure a comprehensive review (see search record in supplementary file 2). For database searches, we developed a boolean logic shaped by the 'Sample, Phenomenon of Interest, Design, Evaluation, and Research type' (SPIDER) approach (32) and tailored search strings to each database, which included: Medline, Embase, PsychINFO, Cumulative Index to Nursing and Allied Health Literature (CINAHL), International Bibliography of the Social Sciences (IBSS) and the Social Sciences Citation Index (SSCI). Searches for relevant studies were conducted in March 2016. We manually searched selected journals to ensure recent publications were included, searched Google Scholar and hand-searched institutional webpages of key authors in the field, identified through our familiarity with the literature. For each included study, we also checked reference lists in other papers.

Inclusion criteria were: scientific peer-reviewed literature; English language; analysis drawing on qualitative research design, including mixed-methods approaches; and analyses addressing the experiences, processes or contexts of injection initiation. Exclusion criteria included grey literature, quantitative research; opinion articles, commentaries, and editorials (i.e., no novel data presented); literature reviews; and non-English language articles.

We reviewed the titles and abstracts for citations found in the database and manual searches. Full references were then checked against inclusion criteria. We assessed the quality of included studies to support interpretation and development of the analysis, rather than as the basis for inclusion.

This approach is consistent with previous qualitative syntheses and debates on the merits of judging quality and the likelihood of lower quality studies contributing less to review results (33). We

employed the Critical Appraisal Skills Programme (CASP) tool for qualitative synthesis quality assessments (34).

### **Thematic Synthesis**

Thematic synthesis develops descriptive and analytical themes through coding of original studies.

Descriptive themes translate the findings from original studies into one another to identify common areas of focus (29). Analytical themes seek a novel synthesis of the literature and to explain and explore the descriptive themes (29).

After familiarizing ourselves with the included studies a coding framework was developed iteratively.

Coding functions as a process of 'reciprocal translation', where findings from different studies are combined (35). For example, we 'translated' accounts reporting 'the high' and 'the rush' of injecting drugs, seeing these as related constructs. We focused this process of translation on second order constructs (i.e., constructs identified by study authors (36)) rather than reinterpreting primary data.

We undertook this approach owing to the limitations on understanding the context of primary data presented in each study and the consequent risk of misinterpreting isolated data fragments. The coding and analysis process was iterative and ongoing, and focused on discussion across the team to refine our translation of concepts, comparing the coded data within codes, and grouping codes into categories.

We used the theoretical framing discussed above to categorize the codes, using core areas of focus from the risk environment such as micro-social environment and agency (23-25). Codes were grouped into descriptive themes representing large code categories (e.g. micro-social environment) or relationships between codes (e.g. accounts of 'the high' from injecting linked to factors such as



social networks). Through discussion, we explored the links between descriptive themes in an effort to 'go beyond' the initial results of the data as summarized and better articulate analytical themes across the qualitative literature (29). The structural framework we used oriented the development of these descriptive and analytical themes towards understanding relationships between individual experiences and environmental factors.

## **RESULTS**

### **Search summary**

We identified 1731 unique articles through the search, of which 41 met inclusion criteria (Figure 1; Table 1).

*Insert figure 1 here – PRISMA search diagram*

*Insert table 1 here - Summary of included papers (37-77)*

### **Study characteristics**

Studies were predominantly from North America (54%), Western Europe (12%), Australia (12%) and Asia (10%). Studies were based on qualitative interviews alone (83%), interviews combined with focus groups or observation (10%) or ethnographic approaches (7%).

We assessed 17 papers (41%) as high quality, 20 (49%) as medium quality, and 4 (10%) as low quality. Many papers we classified as medium rather than high quality owing to limitations in study reporting, primarily due to restrictions on article length and disciplinary conventions rather than weakness in study design.

## **Descriptive and analytical themes**

The included studies frequently addressed experiences of initiation in depth or the social contexts for this; fewer studies explored specific theoretical relationships between these experiences and their contexts. We therefore characterize the literature as frequently in-depth and conceptually diverse, although with less emphasis on developing theoretical relationships between constructs. We developed eight descriptive themes grouped into two analytical themes. The first analytical theme explores injection initiation as a dynamic process produced over time, involving individuals interacting with socio-structural factors. The second analytical theme then further delineates pathways to, and contexts of, injection initiation events. These pathways explore how individuals experience and ascribe meaning to injection initiation within specific social contexts (Figure 2).

*Insert figure 2 here – Summary of coding and descriptive and analytical themes*

### **Theme 1: Injection initiation is a process of change enabled and constrained by social and structural factors**

The first injection of drugs is often embedded in long-term processes of change in self and identity within the context of social interactions and structural factors. This process involves individuals interacting with specific social networks and structural environments that can limit or enable agency; claims of ‘choice’ to initiate injecting drug use need to be understood within the contextual limits on this autonomy.

#### Social networks and social interactions centered on injection drug use

Social connections and networks were reported as fundamental to drug injecting initiation. Friends

(41, 44, 47, 48, 50, 51, 55, 56, 60, 68, 70, 73, 77), family (41, 43, 44, 51, 52, 55, 68, 70-73), intimate partners (42, 48, 49, 52, 57, 59, 60, 64, 68, 70-72, 77), acquaintances (37, 43, 77), gang members (63), elders (65) and drug dealers (41, 42) were all described as influential. Different types of social interactions shaped injection initiation. Some studies referenced the idea of 'exposure' to drug injecting behaviors within particular social networks and locations (e.g., street drug scenes) (44, 61, 70, 72). More precise conceptualizations identified witnessing or observing others injecting (38, 47, 50, 52, 55, 70), which can generate awareness and curiosity (44, 52): *"He would sit in the back [of the car] and start shooting himself. And I was watching him as he was nodding out, much more than I was, and I started getting jealous"* (Woman, 21 years old, USA (48)).

Studies suggested that people who already inject may encourage injection initiation, enthusing about the benefits of drug injection linked to pleasure or cost-efficiency (37, 47, 48, 51, 52, 70, 72, 73) (e.g., *"people were telling me, 'you're wasting it by sniffing'"* (Man, USA (70)). This advocacy is then linked to providing injection initiation assistance, including administering an individual's first injection (47, 72). Encouragement by people who already inject could extend to peer pressure (37, 66, 68) and more direct coercion (38, 52, 55). Experiences of coercion were particularly framed by women's structural vulnerability, and expressed when women reluctantly gave in to male partners' wishes for them to initiate injecting (57, 71, 77).

By contrast, people who already inject drugs also actively discouraged potential injectors (43, 66, 72). Studies suggested a strong reluctance or refusal to assist injection initiation, reflecting group norms on the unacceptability of facilitating injection initiation (51, 53, 66, 71, 72, 75). However, this convention to refuse the facilitation of first injection events was reportedly frequently ignored, for a range of logics, including the desire to reduce potential harms experienced by initiates or to access drugs (53, 66, 71, 72, 75). Both those assisting and those seeking to inject described processes of help-seeking, extending to persistent and pressuring requests to be initiated (48, 51, 53, 66, 72, 75).

### Socialization into drug injection and shifts in identity

A core concept across studies was the 'normalization' of drug injecting within particular social networks as a precursor to initiation (51, 60, 66, 69). This process was described as the erosion of social norms against drug injecting among individuals through their own actions and those of others.

The context for this evolution of social norms towards injection drug use involves individuals' pre-existing fears and stigma regarding injection drug use, as a behavior associated with 'junky', 'low life' or 'dirty' connotations (41, 45, 48, 50, 54, 60, 61).

Injection initiation involved crossing boundaries of morality, stigma (50, 66) or risk (61), where fears or negative social norms are displaced or replaced (48, 72) with new social roles and identities bound to injecting (45). This shift can be influenced by other people (48) (linking to the interactions described above) and through increased participation in social networks centered around injection drug use (50, 52, 58, 69).

### Enabled and constrained choices in context

Many studies explored individuals' active role in processes of initiation (48, 51, 72, 73), with a recurring emphasis on how initiation was planned and desired: *"I wanted to do it, I kind of insisted on it"* (66). This active role is also indicated in persistent requests for help, as described above. A core theme across studies, however, was of limited agency. This occurred whether through accounts of limited autonomy (42) or in how experiences of, and claims to, active choice and autonomy with respect to injection initiation that were, in fact, constrained and enabled by environmental factors (42, 47, 50, 61, 66, 67, 71). For example, a young respondent said: *"It's my own fault at the end of the day, me own choice. I said I'd never inject and I did"* (Woman, 18 years old, Ireland (61)), and yet this was reported within a context of being engaged in a particular drug scene from a young age, in

an impoverished urban context, where drug use is a way to access self-confidence and status, and where boundaries of risk easily shift under widespread drug use (61). Whilst people may then initially frame a process of initiating injecting drug use as a 'choice' and active decision, socio-structural contexts have influence, whether experienced unconsciously or denied in an effort to claim agency and identity. Conversely, some people emphasized a dominant role for context in shaping their initiation of injecting drug use. Recognizing the potential for constraint on an individual from environmental factors also served to help individuals rebuild an identity in response to drug use, which they may regret or be seeking to overcome (66).

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### Meso and macro contexts for initiation

Meso-level environments (i.e., community or organizational-level), such as structurally disadvantaged neighbourhoods, influenced injection initiation through drugs being sold or increased exposure to drug injecting (52, 63, 70, 71), linked particularly to drug use in street scenes (42, 61, 69). Homelessness also led to an immersion in street scenes or shelters where injecting was visible and encouraged (38, 44, 69). Linked to this concentrated disadvantage were constrained socio-economic opportunities stemming from structural vulnerability that amplify the risk of drug injection initiation: working in distributing or selling drugs leading to proximity to drugs (37, 39, 42) or unemployment leading to injecting drug use as a way to manage boredom (65), gain prestige (63) or manage poverty and increasing tolerance (47). Within prison environments, injection drug use is potentially visible and encouraged (58), identified as a way to cope with misery (52), or as a focus for coercion from others (51).

Macro-level processes like cultural norms of what is 'cool' and glamorous (i.e. 'heroin chic' in popular media (48)) can heighten attraction to injecting (37, 48, 52, 66), although also fear of it (41). Changes in drug supply linked to intensive police action (47) or policy shifts in the specific context of prescription opioid availability (58) may increase the viability of injecting from an economic perspective, given contexts of poverty and economic survival (47, 65), or the potential for higher quality drugs (62, 63). Overarching economic changes, whether short-term cycles interacting with poverty and vulnerability to foster the economic appeal of injection (47) or long-term transitions linked to shifting norms and social ties around drug use (66, 67), are also linked to initiation.

## Theme 2: Pathways to and contexts of injection initiation events

In this second analytical theme we explore four overlapping descriptive themes reflecting meanings associated with injection initiation, and delineate pathways linking these individual experiences to specific social and structural factors.

### Seeking pleasure

Many studies described the search for a greater 'high' or 'rush' potentially available through injecting, as primary experiences linked to injection initiation (37, 41, 45-48, 51-53, 56, 60, 63, 64, 66, 71-73, 76). Responses focused on the potential for pleasure: *"There was a bunch of us guys...[they said] 'we're going to do it with a needle and inject ... it gets you high real fast, right away.' I said 'okay, let's go for it'"* (Man, 33 years old, Canada (52)). Linked to pursuing a high was a curiosity about drug injecting (37, 41, 42, 44, 52, 55, 64, 68, 69, 73, 76): *"I wanted to know why he did it that way, what made it so much better"* (Man, 23 years old, USA (41)). Boredom and a need for excitement was also linked to a concern for pleasure and self-fulfillment (41, 51).

Seeking pleasure is bound up within specific social-structural factors. An increased high associated with drug injecting was described as emerging from engagement in social networks that include people who already inject drugs (51, 52, 56, 60, 73), where the high is witnessed (48) or encouraged (47, 73) and curiosity generated (44, 52). Seeking pleasure can be enabled by such social environments (66), whilst experiences of homelessness and marginalization can push people in to social networks and street scenes where injecting is witnessed and people become curious about its effects (42, 69). Shifts in the drug supply to purer or more easily injectable forms also create incentives for injecting given the decreased pleasure associated with less potent drugs or a greater difficulty in purchasing drugs (62, 63).

### Managing increasing tolerance

Accounts referenced increasing tolerance to a drug (37, 40, 41, 47, 48, 52, 55, 58, 60, 68, 70, 71, 76), withdrawals (47, 48, 56, 58, 61, 70) and economic pressures or recognition of the economic efficiency of injecting (37, 41, 46-48, 51, 52, 55, 58, 60-63, 65, 68, 70-73, 76, 77) as linked to injection initiation. The economic efficiency of injecting was potentially framed around desperation and regret: injecting drugs was then about 'getting straight rather than getting high' (48). Accounts of managing increasing tolerance, economic efficiency and seeking a better high were frequently linked (48, 51, 52, 55, 60, 62, 63, 71, 73), as summarized in the phrase of drug injection bringing 'more bang for your buck' (48). A recognition of the increased efficiency of injection drug use can occur within social networks of people already injecting who can encourage this understanding (47, 48, 52) or be a rationale for coercing others in to injecting (77), and thereby reflect economic pressures generated by poverty, marginalization (47, 61), and shifts in drug supply (47).

### Securing belonging and identity

Injection initiation can secure belonging to particular groups and identities. Some reported initiating in response to understandings of a glamorous lifestyle (48) or portrayals of 'coolness' in popular culture (52), and so here drug injecting can be a mark of distinction contingent on particular political and economic contexts (66). For others, injecting is a way to fit in (73), gain belonging and acceptance (51, 52), as well as a response to isolation within drug-using social networks: *"It became very hard to be with them without doing drugs. I saw them enjoying drugs and I felt lonely and always left out."* (Man, 26 years old, India (51)).

A need to belong or adopt certain identities was structured by gender. Women reported injection initiation as a result of efforts to secure intimate partnerships (52, 59, 70, 71) and develop and demonstrate trust and intimacy within relationships (49, 59, 71): *"I didn't even think that I would use, never. We just did it anyway, just to show him that I trust him more than anybody"* (Woman, 23



years old, Australia (49)). Injecting can also be understood as proof of masculinity (51) and 'toughness' among men that reflects limited socio-economic opportunity and other ways to express masculinity: *"group brawls, smoking chimeng, or injecting putaw [heroin] are just part of daily life among many boys in the lorong, part of proving ourselves as real men"* (Man, 24 years old, Indonesia (63)).

#### Coping with pain and traumatic experiences

Drug injecting can function to manage, or respond to, violence, abuse or neglect. Injection initiation was identified as a response to grief, misery and stress (37, 52); as an aid in coping with mental illness (including depression) (46, 50, 55), or to manage physical pain (55). For example, injection initiation was described as a result of dependence on prescription opioids following ill health and accidents (40, 44, 52): *"I was in a car accident. I went through the windshield. So, they prescribed me 2 40's [OxyContin] a day, for three consecutive weeks. It didn't take long before I was like, I love these now, I can't cope"* (Woman, 49 years old, Canada (44)). Injecting was also described as a response to the stress of deportation (64), guilt (68) and assault and rape (39, 41, 71). The nature of crises and trauma and the capacity to manage them can be bound up in social and structural factors. Specific neighbourhoods and street scenes for drug use can be a place people seek refuge in after traumatic experiences (69), or be settings in which crises are more prevalent, for example violence in poor neighbourhoods (71), and where social contacts that can enable drug injection are present (50, 69).

## DISCUSSION

This qualitative systematic review synthesized concepts, experiences and pathways linked to injection initiation. Using a socio-structural framework (22), we developed two analytical themes that comprise eight descriptive themes: injection initiation as a dynamic process produced over time, involving individuals interacting with social-structural factors; and, injection initiation

stemming from specific pathways to and contexts of injection initiation events. In seeking to bring clarity to a large qualitative literature through our theoretical framing, we have demonstrated the extensive empirical evidence for injection initiation as a multi-dimensional phenomenon involving individual, social and structural factors. We have also highlighted the importance of concepts of socialization, identity and an approach exploring dynamic pathways of enacted and constrained individual agency occurring in relation to environmental contexts framed by larger structural vulnerabilities. We consider these concepts and pathways potentially generalizable to a range of contexts, although more study is needed to fully support this.

The review provides insight into the range of pathways by which socio-structural contexts shape individual and group capacities and behaviors. There is also need to further elaborate the theoretical relationships by which agency interacts with specific contextual factors (22); as we noted, studies often provided insight to meanings and experiences or to contextual factors, although there is less emphasis on exploring specific theoretical relationships between factors. Future research should respond to this multi-dimensional understanding of injection initiation and develop more insight in to the specific pathways shaping injecting initiation in diverse contexts, building on the conceptual clarity developed in this review.

Whilst more exploratory study in low and middle income settings would be important - only 9 (22%) studies were undertaken in such settings – saturation in some contexts has arguably been reached, with considerable homogeneity across contexts on the experiences study participants report as well as on social factors identified as particularly influential. Future research should address the underrepresentation of experiences of particular ethnic, sexual, and gender identities in current research; the role of particular drugs; and identify additional specific pathways linking social and structural factors to individual experiences of injection initiation (10).

Policy and interventions to address the needs of people who use drugs and respond to injection drug use should orientate to a dynamic, multi-level understanding of injection initiation. Recent emphasis on structural approaches to reduce the risk of initiation (78) has built on lessons gained from individual level approaches seeking to alter behavior, which may be constrained in their capacity to effectively reduce the potential for initiation (11). This review seeks to develop this emphasis further and we, therefore, explored the emergence of injecting within constraining and enabling contexts. Recognizing this, interventions and policy should seek to create socio-structural environments in which vulnerable individuals have alternative, attractive choices to initiating injection drug use (42), rather than solely prioritizing the reduction of individual harms through behavior change. Whilst implementing and scaling up such structural approaches to health carry challenges, our recommendations respond to evidence for how discrete structural modifications such as supervised consumption facilities can change social environments and so disrupt specific harmful drug-using practices (79-81). Such socio-structural approaches would need to respond to the multiple meanings attached to injection initiation and its multiple contexts, whether someone injecting under pressure from an intimate partner (57) or driven by curiosity and pleasure (69). The centrality of pleasure in our analysis, commonly not highlighted in drug policy research (82), also has implications for considering the feasibility and acceptability of strategies to prevent individuals from initiating injection drug use, as it suggests that currently conceptualized prevention efforts have limits and that allied efforts to support safer injecting are needed (53).

### **Strengths and limitations**

This review has limitations. First, we were limited to English language studies, explaining the dominance of North American, Western European and Australian literature on our findings (although the search did not return any non-English language studies). Second, the methodology of

thematic synthesis has been criticized for decontextualizing findings, which is often understood as the foundation and inherent value of qualitative research (29). However, thematic synthesis is valuable in its capacity to highlight broad themes in the literature that can be developed and explored for their relevance to policy or intervention development (83). Third, all qualitative research, including the products of a thematic synthesis, have limits on generalizability; the findings from this review should therefore be understood as potentially theoretically generalizable to other contexts (84), with future research needed to further explore the relevance of these concepts and refine their applicability in specific contexts.

## **CONCLUSIONS**

We reviewed the existing qualitative literature to delineate experiences and contexts for drug injection initiation. The available qualitative literature suggests injection initiation has varying and distinct meanings and is a dynamic process shaped by social and structural factors. Research and interventions need to adapt to this multi-dimensional understanding of injection initiation as both behavioral and social, and should seek to understand and target socio-structural change.

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**Table 1 – Summary of included papers**

#	Reference	Study Aim	Study Location	Study Design and Methods	Study Population	Quality Assessment
1	Andrade et al. (1999) (37)	Explore shifts in New York heroin markets, and impacts on non-injecting heroin users.	USA: New York City (Lower East Side)	Ethnography	n = 23 People who inject, or who sniffed who had tried injecting.	Medium
2	Briggs et al. (2009) (38)	Within a study on speedball injection, aims to explore how homeless hostel environments shape injecting drug use and related harms.	UK: London and Bristol	In-depth interviews.	n = 45 People who inject heroin and crack.	Medium
3	Carbone-Lopez et al. (2012) (39)	Examines impact of movement into adult roles of family caretaking, motherhood, independent living, and peer and romantic associations in women's accounts of their initiation into methamphetamine use.	USA: Missouri	In-depth interviews.	n = 35 People who had used methamphetamine.	High
4	Dertadian et al. (2014) (40)	Presents data in response to hypothesis that OxyContin is a potential 'gateway' drug to heroin and injecting drug use.	Australia: Sydney	Life history interviews.	n = 2 People who are non-medical users of painkillers.	Low
5	Draus et al. (2006) (41)	Describes contextual factors contributing to heroin injection initiation.	USA: Rural Ohio	Life history interviews and focus groups	n = 25 People who inject heroin.	High
6	Fast et al. (2010) (42)	Examines young peoples' understandings of how their drug use evolved over time to then describe broader risk trajectories.	Canada: Vancouver, Downtown district with long-established drug market	In-depth interviews and ethnographic observation.	n = 38 People using methamphetamine, crack cocaine, crack or heroin.	High
7	Finlinson et al. (2006) (43)	Explores polydrug use history of recent initiators of drug injecting.	Puerto Rico: Bayamon	In-depth interviews.	n = 25 People who injected drugs.	Medium
8	Firestone et al. (2008) (44)	Responding to prescription opioid and crack use amongst street drug users, aims to describe behaviors and preferences as well as social and structural contexts for use of these drugs.	Canada: Toronto	Qualitative study using in-depth interviews.	n = 25 People who injected prescription opioids.	Medium

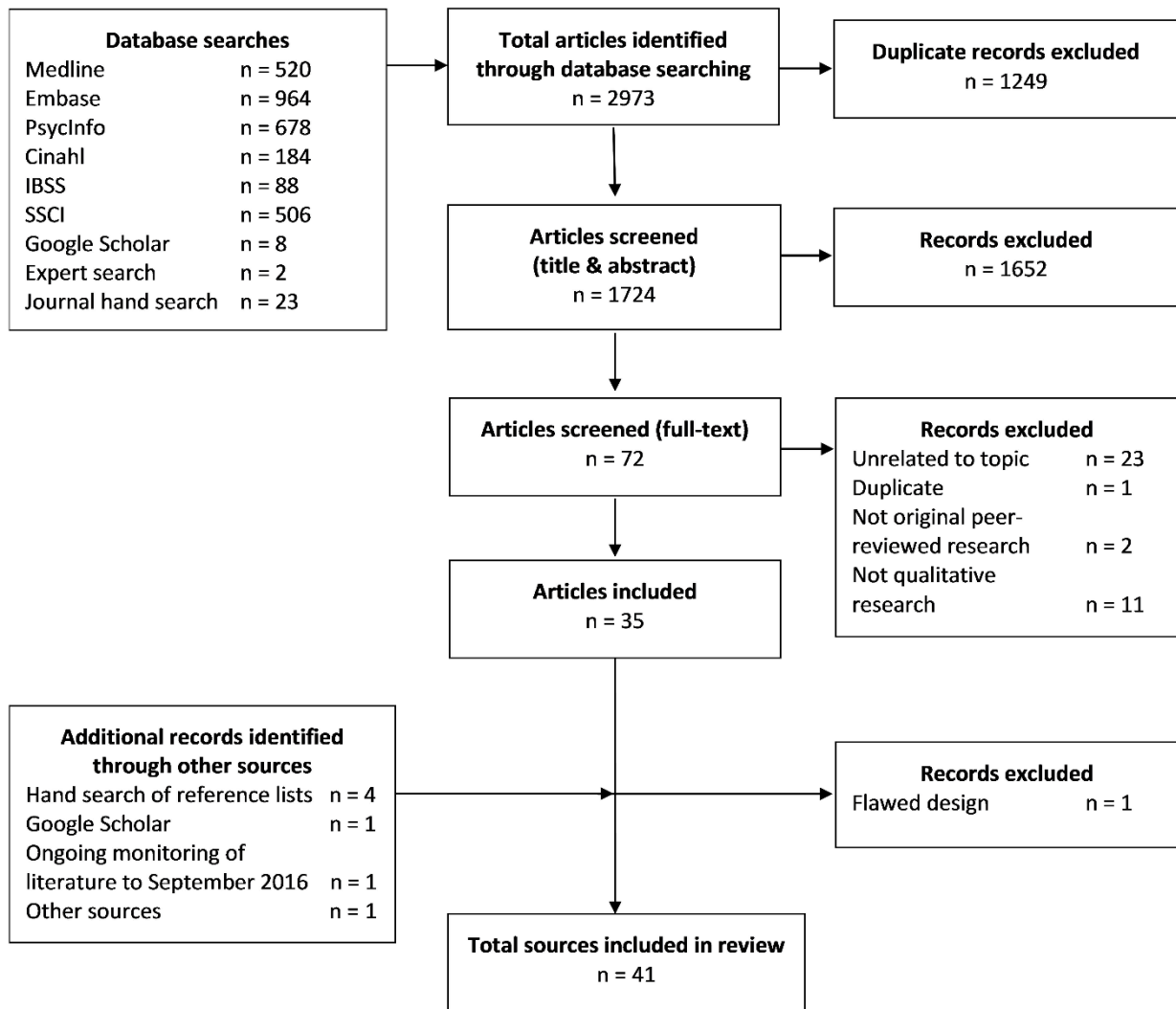
9	Fitzgerald et al. (1999) (45)	Explores experiences of 'the rush' for new initiates to injecting drug use and contextualizes the experience within the construction of being initiated into injecting behavior.	Australia	Qualitative study using semi-structured interviews.	n = 17 People who initiated injecting in the past 3 years.	High
10	Giddings et al. (2003) (46)	Explores what differentiates drug injecting from other methods.	UK	Qualitative study using in-depth interviews.	n = 7 People who were currently injecting, or who had recently stopped.	Low
11	Guise et al. (2015) (47)	Combines studies to explore the social context for transitions to injecting heroin.	Kenya: Nairobi and coastal region	Qualitative studies using in-depth interviews, observation and ethnographic interviews.	Study 1: n = 50 People all currently injecting heroin. Study 2: n = 92 Various drug market stakeholders.	Medium
12	Harocopos et al. (2009) (48)	Describes social contexts for injecting initiation.	USA: New York City	Longitudinal qualitative study using repeated in-depth interviews.	n = 54 People who had recently initiated injecting drug use.	Medium
13	Higgs et al. (2008) (49)	Exploratory study to identify issues surrounding heroin initiation and drug use; to examine relationships with family and primary sex partners; and to reveal participants' attitudes to drug treatment.	Australia: Melbourne	Qualitative study using semi-structured interviews.	n = 24 Women who used heroin.	Medium
14	Horyniak et al. (2014) (50)	Understand injecting drug use exposure and preferences among young people from culturally diverse backgrounds.	Australia: Melbourne	Semi-structured interviews.	n = 18 People who had ever injected drugs, or who had never injected drugs.	High
15	Kermode et al. (2009) (51)	Increase understanding of contextual factors associated with initiation to injection drug use.	India: Nagaland and Manipur, northeastern states with proximity to Golden Triangle	Semi-structured interviews.	n = 40 People who injected drugs and had initiated in the past 3 years.	High

16	Khobzi et al. (2009) (52)	Exploration of biological, psychosocial, socio-cultural and socio-structural processes in injection initiation.	Canada: Toronto	Field and in-depth interviews	n = 102 People who inject drugs.	High
17	Kolla et al. (2015) (53)	Examine initiation events from the perspective of the initiators, in order to understand their roles and motivations.	Canada: Toronto	Semi-structured interviews.	n = 20 People who had injected drugs.	High
18	Lankenau et al. (2007) (54)	Describe the circumstances surrounding the first injection of Ketamine.	USA: New York City, New Orleans, and Los Angeles	In-depth interviews.	n = 213 People who had injected ketamine.	Medium
19	Lankenau et al. (2010) (55)	Describes how drug type used at first injection relates to characteristics of the initiate, risk behaviors, and future drug use trajectories.	USA: New York City, New Orleans, and Los Angeles	Survey integrating qualitative data collection.	N = 222 People who injected drugs.	Medium
20	Lankenau et al. (2012) (56)	Describe initiation in to prescription opioid misuse.	USA: New York City and Los Angeles	Survey integrating qualitative data collection.	n = 50 People who injected drugs.	High
21	Lazuardi et al. (2012) (57)	Explores role of male partners in women's engagement in drug-use behavior.	Indonesia: 2 cities in Central Java Province and 1 city in Yogyakarta Special District	In-depth interviews.	n = 19 Women who injected drugs.	Medium
22	Mars et al. (2014) (58)	Understand process by which heroin injectors had initiated heroin use and injecting.	USA: Philadelphia and San Francisco	Ethnography and semi-structured interviews.	n = 41 People who inject drugs.	High
23	Martin (2010) (59)	Explore social conditions under which women become vulnerable to injecting initiation.	Australia: Melbourne	In-depth interviews.	n = 21 Young mothers and pregnant women who had injected drugs within the past year.	Medium
24	Mateu-Gelabert et al. (2015) (60)	Explores drug use and sexual risks of non-medical prescription opioid users.	USA: New York City	In-depth interviews.	n = 46 People who used prescription opioids.	Medium

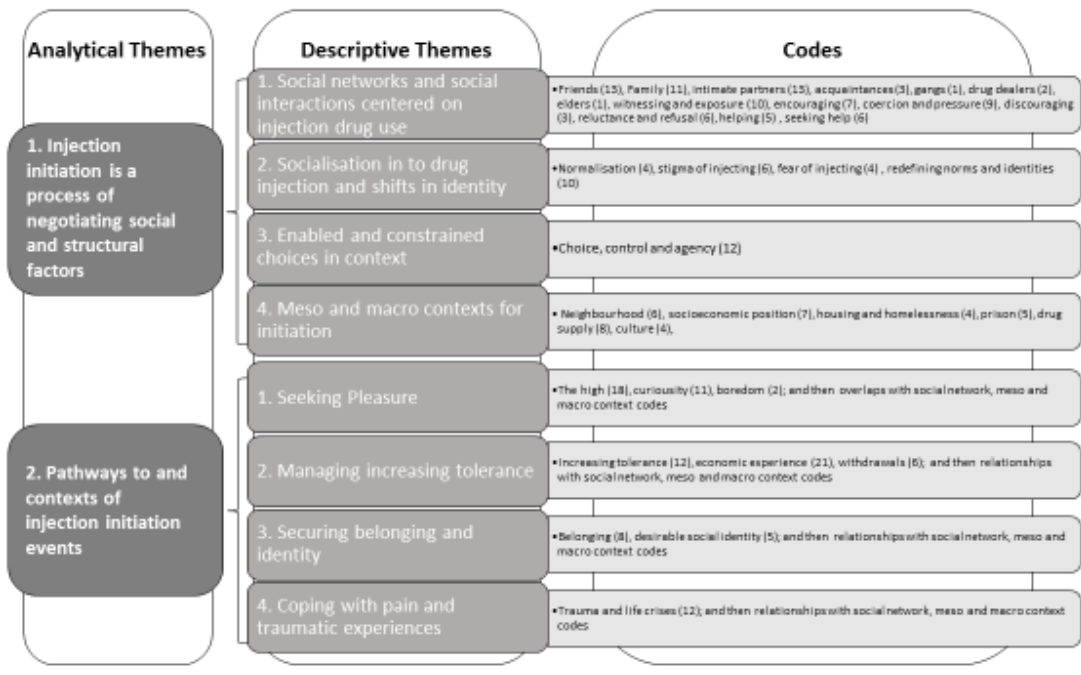


25	Mayock (2005) (61)	Examines young people's drug use and their drug transitions.	Ireland: Dublin, poor inner city community	Longitudinal ethnography with interviews, focus groups and participation.	n = 57 Young people.	Medium
26	McCurdy et al. (2005) (62)	Explore the rules and organization of drug use.	Tanzania: Dar es Salaam	Semi-structured interviews.	n = 81 People who use drugs, including injected drugs.	Medium
27	Nasir et al. (2009) (63)	Examines the influence of the social context on initiation of injecting drug use in slum areas.	Indonesia: Makassar, slums	In-depth interviews.	n = 18 Men who inject drugs.	High
28	Ojeda et al. (2011) (64)	Describes illicit drug use behaviors in diverse settings of Mexican born deportees from the USA.	Mexico: Tijuana	In-depth interviews.	n = 24 Men who inject drugs who had been deported from the USA.	Medium
29	Razani et al. (2007) (65)	Explore risk behaviors of people using drugs in context of harm reduction efforts.	Iran: Tehran	Focus groups and key informant interviews.	n = 88 People who inject drugs.	Medium
30	Rhodes et al. (2011) (66)	Explore accounts of people who inject drugs who initiate others in to drug injecting.	Moldova: Balti	Semi-structured interviews.	n = 42 People who currently or previously injected drugs.	High
31	Rhodes et al. (2012) (67)	Explores how narratives of drug transitions relate to broader social and economic transitions.	Moldova: Balti	Semi-structured interviews.	n = 42 People who currently or previously injected drugs.	High
32	Robertson et al. (2012) (68)	Examine the correlates and contexts of US injection initiation among undocumented migrants.	USA and Mexico: Tijuana	Semi-structured interviews.	n = 23 Men who inject drugs.	Medium
33	Roy et al. (2008) (69)	Examine social contexts and processes influencing transition to drug injection among street youth.	Canada: Montreal	In-depth interviews.	n = 42 Street youth, including those who had injected drugs.	High
34	Sherman et al. (2002) (70)	Explores the influences on the transition from sniffing to injecting heroin.	USA: Baltimore	In-depth interviews.	n = 19 People who inject drugs.	High

35	Simmons et al. (2012) (71)	Explore the interpersonal and structural dynamics that shape injection initiation within intimate partnerships.	USA: New York City, Harlem and South Bronx	Semi-structured interviews.	n = 16 People who inject drugs initiated within intimate partnerships, or had initiated a partner.	Medium
36	Small et al. (2009) (72)	Investigate the initiation of injection drug use among street involved youth	Canada: Vancouver	In-depth interviews.	n = 26 Street youth who inject drugs.	High
37	Tuchman (2015) (73)	Explore the social, contextual, and behavioral dimensions of injecting practices of women who inject drugs.	USA: New York City, Lower East Side	In-depth interviews.	n = 26 Women who inject drugs.	Low
38	Wagner et al. (2013) (74)	Understand how the social context of young women's injection events contributes to HIV/HCV risk.	USA: Los Angeles	Survey integrating qualitative data collection.	n = 30 Women who inject drugs.	Low
39	Wenger et al. (2016) (75)	Examine the injection initiation process from the perspective of established people who inject drugs.	USA: San Francisco and Los Angeles	Life course interviews.	n = 113 People who inject drugs aged over 30.	Medium
40	Witteveen et al. (2006) (76)	Elucidate injection initiation and risky injection practices among young drug users.	The Netherlands: Amsterdam	In-depth interviews.	n = 50 Young people, including those who had ever injected drugs.	Medium
41	Wright et al. (2007) (77)	Explore women drug users experiences of abuse from intimate partners when being injected with illicit drugs.	UK: Leeds and North Nottinghamshire	In-depth interviews.	n = 45 Women who inject drugs.	High



**Figure 1 - PRISMA search diagram**



**Figure 2 - Summary of coding and descriptive and analytical themes**