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Review

Stigmatization of people with addiction by health professionals: Current knowledge. A scoping review

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HIGHLIGHTS

- Stigma of people with SUD by health professionals persists.
- Contributors to stigma are: moral model of SUD, negative beliefs about SUD, lack of training in SUD.
- Teaching addiction according to a medical model of chronic disease, and developing stigma-focused training, could reduce stigma.

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ABSTRACT

Background: Stigma of people with substance and non-substance use disorders (SNSUD) is a long-known phenomenon. The aim of this review was to assess the stigmatization, by health professionals, of people with SNSUD, its characteristics and change over time.
Methods: A scoping review of literature reviews was conducted with systematic search of PubMed, Scopus and PsycINFO databases.
Results: From the 19 selected reviews, all focused on people with SUD (PWSUD) only and 20 % to 51 % of health professionals had negative attitudes/beliefs about SUD. Addiction training and clinical experience with PWSUD were associated with a less negative attitude. Health professionals' negative beliefs, lack of time or support were associated with less involvement in addiction care. Tobacco use disorder, SUDs other than alcohol and tobacco, relapse, psychiatric comorbidity or criminal records were associated with a more negative attitude. The influence of several variables potentially related to stigmatization was inconsistent across selected reviews. The evolution of stigmatization over time was not systematically assessed and showed mixed results.
Conclusions: The stigmatization of PWSUD has an impact on their care, and a change in some variables could reduce its importance: moral model of addiction, health professionals' negative beliefs, lack of training, time, and role support. Teaching what addiction is according to the medical chronic disease model, and developing stigma-focused training could improve caregivers' attitudes and further reduce stigma. Further studies are needed to determine whether stigma of PWSUD by health professionals has changed over time and to characterize stigma for people with non-substance use disorders.

1. Introduction

Substance and non-substance use disorders (addiction) are characterized by the compulsive, uncontrolled and persistent use of a reinforcing substance or behavior, despite the harmful consequences (ASAM, 2019; Auriacombe et al., 2018). Among mental disorders, addiction is the most prevalent. Worldwide, 933 million people smoke tobacco daily and are likely for the majority to have a tobacco use disorder (TUD) (G. B. D. Tobacco Collaborators, 2017), 100.4 million people are estimated to have an alcohol use disorder (AUD) and 59.7

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million to have an other substance use disorder (SUD); i.e., other than tobacco or alcohol (G. B. D. Alcohol and Drug Use Collaborators, 2018). The prevalence of behavioral addictions between 2019 and 2022 was as high as 11.1 % (Alimoradi et al., 2022). The health consequences of SUD are major and can be devastating. Because addiction induces excess use without self-regulation, the user will be exposed to the many toxic effects of addictive substances and will not adapt his use to the consequences (G. B. D. Risk Factor Collaborators, 2018).

A negative view of addiction within society has been documented for a long time (Schomerus et al., 2011; Yang et al., 2017), and it is more negative than for other mental diseases (Barry et al., 2014). People with SUD (PWSUD) are viewed by the general population as more dangerous, more unpredictable, less able to make decisions, and noteworthy, more responsible for their disease (Peretti-Watel et al., 2014; Schomerus et al., 2011; Yang et al., 2017). People with behavioral, non-substance use disorders may even be held more responsible for their problems than PWSUD (Konkolÿ Thege et al., 2015; Orendain et al., 2013). These stereotypes can be internalized by people who are stigmatized, leading to self-stigma (Corrigan and Watson, 2002), which weakens self-esteem and feelings of self-efficacy: the why try effect (Corrigan, 2009). Social stigma or self-stigma reduces access and adherence to care for those in need for care (Crapanzano et al., 2019; Cunningham et al., 1993; Luoma et al., 2007; Mojtabai et al., 2014; Probst et al., 2015). Stigmatization, and the associated discrimination, emerge as major barriers to access mental health care (Clement et al., 2015; World Health Organization, 2001).

It is well known that structural stigma, relating to the health, justice or political system, can lead to discrimination, particularly in mental health (Corrigan et al., 2004). In fact, despite the existence of effective addiction treatments (Reus et al., 2018; World Health Organization and United Nations Office on Drugs and Crime, 2020), a study in 26 countries revealed that only 7.1 % of PWSUD (SUD/AUD only) received minimally adequate treatment during the last year (Degenhardt et al., 2017). Another study showed that AUD was the disorder with the widest treatment gap in mental health care (Kohn et al., 2004).

Knowing that accessing to care is difficult for people with an addiction, who are structurally stigmatized by society, what is the attitude of the health professionals they meet? In the 1960–1970s, health professionals perceived 'alcoholism' as a disorder occurring primarily among 'tramps'. They prioritized people with medical problems and considered people with AUD as weaker, more aimless and hopeless than average (Fisher et al., 1975a; Wolf et al., 1965). Yet we already knew that a more compassionate attitude favored better treatment alliance and patient engagement in care (Chafetz et al., 1962). Since then, the addiction model has changed towards a chronic medical disease model, with validated diagnostic criteria, and includes both substance and non-substance behavioral addictions (Auriacombe et al., 2018; Hasin et al., 2013). But even recently, people with SUD or TUD have been discriminated against when accessing healthcare because of their addiction (Glantz, 2007; Kimmel et al., 2021).

Although several studies have investigated the stigmatization of people with an addiction by healthcare professionals, no publication evaluating the outcome over time of stigmatization was found. Nor were any reviews found evaluating the attitude of professionals across substance use disorders, including tobacco, and behavioral addictions. Stigmatization maybe related to the social representation unique to the different substances and behaviors, such as legal status, acute consequences, costs, but it may also be related to the repeated relapses consequential to the impaired control of use that is characterized across additions of all types, substance and non-substance related. The aim of this study was to assess, through a scoping review of the literature, the current state of knowledge about stigmatization by health professionals towards people with an addiction, both the classic stigma (negative judgment) and the more discreet stigma consisting of trivializing a disorder and not treating it. The characteristics of health professionals who stigmatize and of people who are stigmatized were explored in addition to searching whether stigmatization has changed over time.

2. Methods

A scoping review of the literature was conducted (Arksey and O'Malley, 2005; Levac et al., 2010). Unlike a systematic review, which seeks to test a hypothesis or evaluate the effectiveness of an intervention, a scoping review provides a guide to achieve a state of knowledge on a complex phenomenon, with a rigorous and transparent method inspired by systematic reviews (Fusar-Poli and Radua, 2018; Munn et al., 2018; Pham et al., 2014; Schultz et al., 2018; Tricco et al., 2018).

2.1. Search strategy

A systematic search of PubMed, Scopus and PsycINFO databases was conducted in April 2020. Literature reviews whose explicit aim included the following terms were targeted: *stigma* by *healthcare professionals* on *people with addiction* or *addiction treatment*. For this study, stigma was defined as negative attitudes or negative beliefs of healthcare professionals towards people with an addiction (i.e., substance or behavior), addiction, addiction treatment, or a lesser involvement in treatment. The publication dates and language of reviews were not limited. The search strategy was the same for the three databases. Keywords were adapted to the specific thesaurus of each database (Table 1). To be considered a literature review, the publication had to have an explicit strategy for collecting the literature, visible in the title, abstract or full article. Clinical studies, protocols and case studies were excluded.

2.2. Study selection

After extraction from the databases and removing duplicates, the first selection was based on the title. The words '*people with addiction*' or '*addiction treatment*' (or equivalent), '*health professionals*' (or equivalent) and '*stigma*' (or equivalent) had to appear (Table 2). The following selections, from the abstract and then the full text, checked the aim of the review and that they were literature reviews. Articles dealing with the general attitude (negative or positive) of professionals towards people with an addiction were also included. The full text selection was done by two reviewers independently. Literature references for each included study were systematically checked for additional publications.

2.3. Quality assessment

The quality of publications was assessed using the AMSTAR checklist (Shea et al., 2009). In particular, this tool assessed the process of literature search, study selection, data extraction, evaluation of the quality of studies, the method for combining results and publication bias. Each item was answered with: '*yes*', '*no*', '*cannot answer*' or '*not applicable*'. This scoring system was worth 1 point for '*yes*' and 0 point for the other response options. Categories were determined as follows: low (score 0 to 3), medium (score 4 to 7), and high (score 8 to 11) (Canadian Agency for Drugs and Technologies in Health, 2011). All results were described regardless of quality, but only results from reviews with medium and high qualities were considered when drawing conclusions.

2.4. Data extraction

Useful data were extracted and collected in a table for thematic analysis. First, the raw data was collected, then a closed checklist was constituted using distinct homogeneous categories. Each publication was then re-analyzed using this checklist. Data collected were synthesized to answer the study's aims. Based on the data collected, the synthesis focused on (1) stigma characteristics and prevalence (2) health professionals' characteristics (3) stigmatized patients' characteristics and (4) the evolution of stigma prevalence over time.

Table 1
Systematic search strategy according to PubMed, PsycINFO, Scopus databases.

	PubMED	*PsycINFO*	*Scopus*
Health professionals	#1 health personnel *#2 psychiatrist* *#3 resident* #4 *psychologist* #5 counselor #6 social worker #7 students, health occupations #8 psychiatric hospital #9 general hospital #10 primary health care #11 emergency medical services #12 ambulatory care facilities	#1 DE Health Personnel #2 DE Allied Health Personnel #3 DE Caregivers #4 DE Medical Personnel #5 DE Mental Health Personnel #6 DE Physicians #7 DE Family Physicians #8 DE General Practitioners #9 DE Psychiatrists #10 Residents #11 DE Nurses #12 DE Psychiatric Nurses #13 DE Psychologists #14 DE Clinical Psychologists #15 DE counseling Psychologists #16 DE Social Workers #17 DE Psychiatric Social Workers #18 Health students #19 DE Medical Students #20 DE Nursing Students #21 DE Hospitals #22 DE Psychiatric Hospitals #23 DE Emergency Services #24 DE Crisis Intervention Services #25 DE Primary Health Care #26 Ambulatory care facilities	#1 health personnel #2 healthcare professional #3 healthcare provider #4 caregiver #5 medical staff #6 physician #7 general practitioner #8 family physician #9 psychiatrist #10 resident #11 psychologist #12 counselor #13 nursing staff #14 nurse #15 nursing aide #16 social worker #17 health students #18 medical students #19 nursing students #20 psychiatric hospital #21 general hospital #22 emergency medical services #23 primary health care #24 ambulatory care facilities
	#13 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12	**#27** #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26	**#25** #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24
People with addiction	#14 substance-related disorders #15 smoking #16 smokers #17 alcoholics #18 drug users #19 behavior, addictive #20 pathological gambling #21 *gaming disorder* #22 *sexual addiction*	#28 DE Substance-related disorders #29 DE Substance Use Disorder #30 DE Addiction #31 DE Drug Abuse #32 DE Drug Dependency #33 DE Alcohol Use Disorder #34 DE Alcoholism #35 DE Alcohol Abuse #36 DE Tobacco Use Disorder #37 DE Tobacco Smoking #38 DE Cannabis Use Disorder #39 DE Opioid Use Disorder #40 DE Heroin Addiction #41 DE Crack Cocaine #42 DE Non substance Related Addictions #43 DE Food Addiction #44 DE Gambling Disorder #45 DE Internet Addiction #46 DE Sexual Addiction #48 DE Intravenous Drug Usage #49 DE Inhalant Abuse #50 Drug users #51 Smokers #52 Alcoholics	#26 substance related disorder #27 substance use disorder #28 substance dependence #29 substance addiction #30 substance abuse #31 addiction #32 drug abuse #33 drug addiction #34 alcohol related disorder #35 alcohol use disorder #36 alcoholism #37 alcohol dependence #38 alcohol abuse #39 alcoholic #40 alcohol addiction #41 tobacco use disorder gambling #42 smoking #43 cannabis addiction #44 heroin addiction #45 amphetamine addiction #46 cocaine addiction #47 morphine addiction #48 opiate addiction #49 behavior addictive #50 pathological #51 gaming disorder #52 sexual addiction #53 food addiction #54 drug users #55 smokers #56 intravenous drug use #57 inhalants abuse
	#23 #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22	**#53** #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52	**#58** #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56 OR #57
Stigma	#24 attitude of health personnel #25 stigma #26 discrimination #27 professional patient relations	#54 DE Health Personnel Attitudes #55 DE Stigma #56 DE Social Discrimination #57 professional patient relations	#59 attitude of health personnel #60 stigma #61 discrimination #62 professional-patient relations
	#28 #23 OR #24 OR #25 OR #26 OR #27	**#58** #54 OR #55 OR #56 OR #57	**#63** #58 OR #59 OR #60 OR #61 OR #62
Study type	#29 literature review #30 systematic review #31 meta analysis	Literature Review OR Systematic Review OR Meta Analysis	#64 literature review #65 systematic review #66 meta analysis
	#32 #27 OR #28 OR #29 OR #30 OR #31		**#67** #63 OR #64 OR #65 OR #66
Combination	**#33 #13 AND #23 AND #28 AND #32**	**#27 AND #53 AND #58**	**#25 AND #58 AND #62 AND #67**

PubMed: all terms are searched in the [MeSH Terms] field. Terms in italics are not MeSH terms.
PsycINFO: DE terms are searched in the « Subject [exact] ». Non-DE terms are search terms « without precision ».
Scopus: all terms are searched [Title-Abstract-Keywords] field.

Table 2
Keyword thesaurus for the selection of reviews after extraction from databases.

Health profesionals		*People with addiction*		*Stigma*		*Excluding*
Caregiver	Hospital setting	Addiction	Misuse	Access	Opinion	Study
Clinical services	Medical care	Alcohol	Morphine	Attitude	Perception	Case study
Clinician	Medical schools	Alcoholic	Nicotine	Barriers	Perspective	Protocol
Dentist	Medical students	Alcoholism	Opiate	Beliefs	Practices	
Doctor	Nurses	Cannabis	Opioid	Deficit	Quality	
Emergency department	Nursing	Cocaine	Smoke	Denial	Regard	
Emergency room	Pharmacist	Dependence	Smoking	Discouragement	Professional patient relation	
Family physician	Pharmacy	Drug	Smoking cessation	Discriminating	Representation	
General practitioner	Physician	Drug use	Substance abuse	Discrimination	Rights violation	
GP	Primary care	Drug users	Substance related disorder	Disparitie	Satisfaction	
Health care	Primary health care	Eating disorder	Substance related presentation	Engagement	Stereotype	
Health facilities	Provider	Ecstasy	Substance use	Inadequate	Stigma	
Health personnel	Psychiatrist	Food addiction	Substance use disorder	Marginalization	stigmatisation	
Health professionals	Resident	Gambling	Substance misuser	Negative beliefs	Stigmatization	
Health service	Staff	Heroin	Substance using patients	Nonprescription	View	
Health student	Therapist	Illicit drugs	Tobacco	Obstacle		
Healthcare provider	Therapy	Illegal drugs	Tobacco use			
Healthcare practitioner	Treatment providers	Marijuana	Use disorder			
Healthcare worker	Treatment services	MDMA				
Hospital	Treatment setting	Metamphetamine				

3. Results

The flowchart of the selection process is presented Fig. 1. Of the 266 publications initially selected, 17 met the inclusion criteria. The agreement (kappa) on full text selection was 0.95. Exclusion criteria were an objective not focused on stigmatization by health professionals or a type of study outside of the literature review. Analysis of the references of the included reviews identified two additional reviews (Duaso et al., 2014; Howard and Chung, 2000c). Among the 19 reviews, all were about substance use disorders and none mentioned behavioral non-substance addictions, the number of reviews mentioning each addiction was: 8 on AUD, 13 for TUD, and 5 for other SUD (Table 4). The general characteristics of the included reviews are detailed in Table 3. Of the 19 included reviews, 11 were systematic, 4 of which with meta-analysis or meta-synthesis, and 8 were narrative. They were each based on 8 to 56 publications. A total of 415 publications were cited at least once, of which 16 (3.85 %) were cited by two reviews. The studies cited were published between 1963 and 2016. The quality of the publications ranged from 0 to 8, with a mean score of 4.9/11: 7 were low (LQ), 9 were medium (MQ) and 3 were high quality (HQ). All results were described but only those from reviews with MQ and HQ ($n = 12$) were considered when drawing conclusions. Health professionals' characteristics, stigmatized persons' characteristics, and the association of both characteristics with the attitude of health professionals are available Table 4. Six reviews reported negative attitudes, 13 reviews reported negative beliefs and 14 reviews reported barriers to involvement in addiction management.

3.1. Stigma's characteristics and prevalence (Table 5)

In this section, only eleven reviews that reported quantitative and/or qualitative prevalence were included. Data from reviews referring to attitudes, beliefs or vision of care without prevalence data were not included. Of these eleven reviews, three reported on the general attitudes of professionals (Ducray and Pilch, 2017; Howard and Chung, 2000a; Van Boekel et al., 2013). Ten reviews reported professionals' beliefs, including five on PWSUD (Guydish et al., 2007; Howard and Chung, 2000a; Sheals et al., 2016; Van Boekel et al., 2013; Howard and Chung, 2000b), five on addiction (Guydish et al., 2007; Howard and Chung, 2000a, 2000b, 2000c; Sheals et al., 2016) and eight on treatment (Flemming et al., 2016; Guydish et al., 2007; Howard and Chung, 2000a, 2000b; Rush et al., 1994; Sheals et al., 2016; Stead et al., 2009; Vogt et al., 2005).

3.1.1. General attitude

Three reviews (LQ, MQ and HQ) explored general attitude of health professionals towards PWSUD and those with good quality (MQ, HQ) consistently reported a general negative attitude. One reported that, whatever the substance type, health professionals had consistently held a very low attitude, lower than for patients with other chronic conditions such as diabetes or depression (Ducray and Pilch, 2017; Van Boekel et al., 2013). One review reported a generally negative attitude but mentioned one study in which 'generally' positive attitudes were reported (Van Boekel et al., 2013). Mixed results, with one third of health professionals that had 'morally condemnatory' attitudes towards people with AUD, and up to 80 % that described themselves as tolerant and understanding towards people with AUD was reported by the LQ review (Howard and Chung, 2000a).

3.1.2. Health professionals' beliefs towards PWSUD

Five reviews (2 LQ and 3 MQ) reported consistent results about health professionals' negative beliefs towards PWSUD. Up to 51 % of health professionals perceived a lack of motivation in people with TUD (Guydish et al., 2007; Sheals et al., 2016). People with SUD were often perceived as manipulative, aggressive and unmotivated (Van Boekel et al., 2013). According to two LQ reviews, up to 59 % of health professionals considered PWSUD to be antisocial, considered patients with AUD to be difficult and dishonest about their use (Howard and Chung, 2000b), perceived a lack of motivation in people with AUD and many nurses thought they were violent, considered people with intravenous SUD as a threat to society because of possible HIV infection (Howard and Chung, 2000a).

3.1.3. Health professional's beliefs towards addiction

Two reviews (MQ and HQ) reported consistent results towards smoking. Up to 17 % and 33.5 % of health professionals perceived tobacco smoking as helpful for patients to recover from other SUD (Guydish et al., 2007) and to establish a therapeutic relationship (Guydish et al., 2007; Sheals et al., 2016), respectively.

Three reviews (LQ) reported consistent results about beliefs towards addiction. Up to one-third of health professionals considered addiction as a moral or spiritual condition (Howard and Chung, 2000b) or as a character weakness (Howard and Chung, 2000b, c) and held patients responsible for their disease (Howard and Chung, 2000b). Two-thirds of health professionals viewed addiction as a chronic disease (Howard and Chung, 2000a).

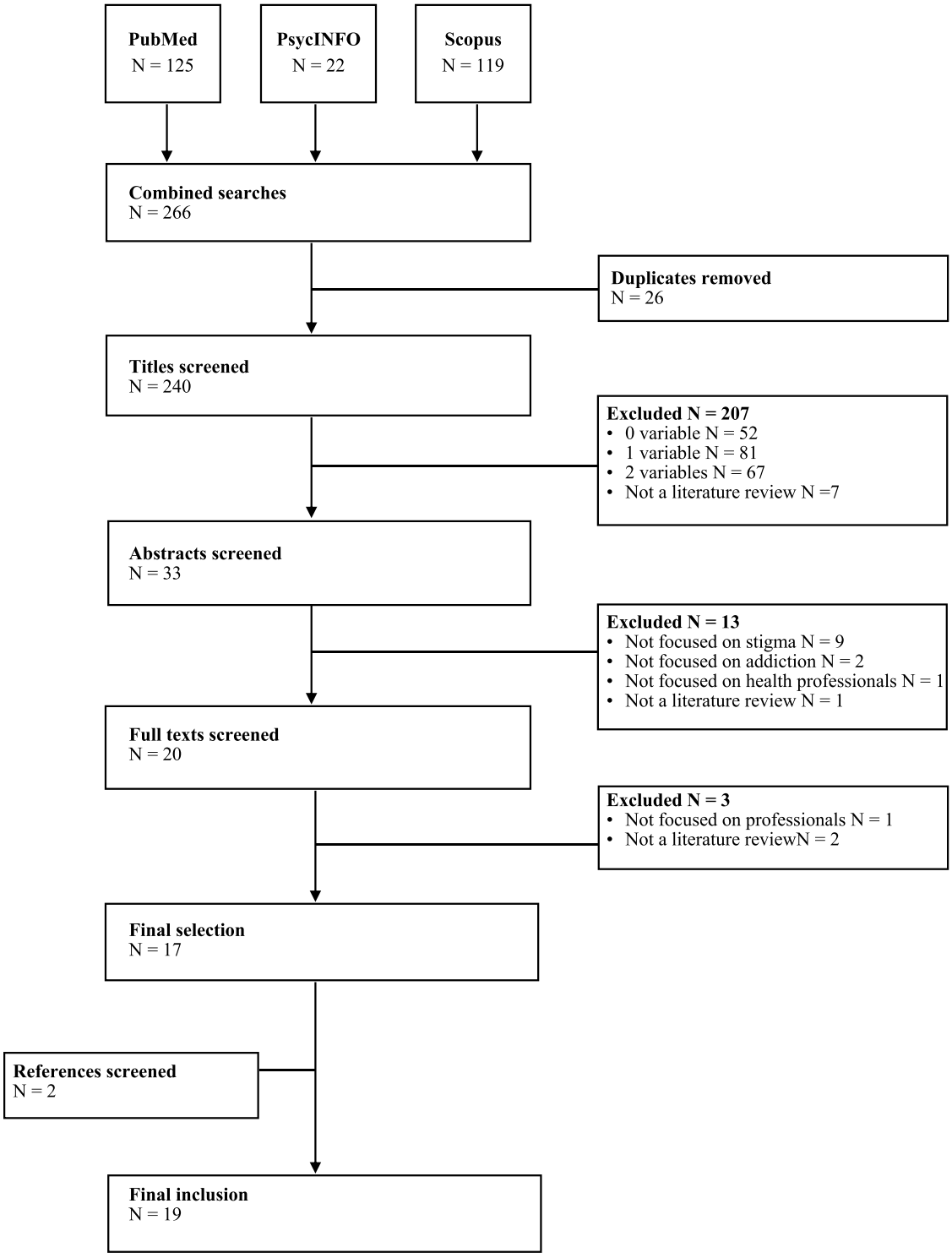

Fig. 1. Flowchart of the literature selection process.

3.1.4. Health professional's beliefs towards addiction treatment

Five reviews (1 LQ and 4 MQ) reported consistent results about TUD which was perceived as a trivi-al condition not to be treated for the majority of professionals. Up to 18 % to 47 % of health professionals had a negative attitude towards treatment of TUD, considered to ask to quit smoking to be excessive and TUD care not to be a health priority (Sheals et al., 2016), considered TUD treatment as ineffective (Sheals et al., 2016; Vogt et al., 2005), difficult (Stead et al., 2009), too time-consuming and unpleasant (Vogt et al., 2005), feared a negative impact of TUD treatment on other addictions (Guydish et al., 2007), on an associated psychiatric disorders (Sheals et al., 2016), or on the relationship with the patients (Flemming et al., 2016). Up to 18 % of psychiatrists did not perceive that they should be involved in the management of TUD treatment (Sheals et al., 2016). While one review reported that more than 70 % of professionals felt that TUD should be treated in the same way as other addictions, the authors showed a wide gap between this representation of care and its weak application in clinical practice. (Guydish et al., 2007).

Three reviews (3 LQ) reported mixed results about AUD treatment. Up to 79 % of nurses were optimistic about the outcome of treatment,

Table 3
General characteristics of the reviews included (type of literature review, objective(s) declared by the authors, number of studies included in the review, review study period, stigma assessment, stigma prevalence data, changes in stigma prevalence over time, quality score).

Reference	*Type of literature review*	*Delacred aim(s)*	*No of studies included*	*Study period*	*Stigma assessmnt*	*Stigma prevalence*	*Change in prevalence over time*	*Quality score*
Bakhshi and While, 2013	Systematic review	Examine HPs' alcohol-related health promotion practices Explore the relationship between HPs' personal alcohol attitudes and behaviors, and their professional alcohol-related health promotion practices	32	2007–2012	Attitude Care involvement	NA	NA	7
Chandrakumar and Adams, 2015	Narrative review	Assess smoking rates among nurses Explore the factors influencing the nurse's role in promoting smoking cessation among patients	9	2001–2013	Care involvement	NA	NA	2
Conlon et al., 2017	Systematic review	Establish common attitudes and beliefs surrounding smoking cessation of HCP working with cancer patients Establish factors which repeatedly facilitate and hinder the delivery of smoking cessation interventions to cancer patients	19	2000–2016	Attitude Beliefs Care involvement	NA	NA	6
Diniz and Caron Ruffino, 1996	Narrative review	Relate the obstacles that interfere in the communication between nurses and alcoholics	8	1970–1992	Attitude Beliefs	NA	Yes	0
Duaso et al., 2014	Systematic review and meta-analysis	Establish whether the smoking status of doctors is associated with their engagement in smoking cessation	20	1997–2012	Care involvement	NA	NA	8
Duaso et al., 2017	Systematic review and meta-analysis	Establish whether the smoking status of nurses is associated with their engagement in smoking cessation	15	2000–2014	Care involvement	NA	NA	8
Ducray et al. 2017	Systematic review	Determine how health students regard substance-using patients	16	2002–2015	Attitude	Qualitative	NA	8
Flemming et al., 2016	Systematic review	Explore the barriers and facilitators to supporting smoking cessation in pregnancy and after birth from the perspective of health professionals	9	2003–2013	Beliefs Care involvement	Qualitative	NA	6
Guydish et al., 2007	Systematic review	Assess smoking prevalence among drug abuse treatment staff Summarize the range of barriers to provision of nicotine dependence intervention to clients receiving addictions treatment	22	1983–2007	Attitude Beliefs Care involvement	Quantitative	NA	4
Howard et al. 2000 I	Narrative review	Assess nurses' attitudes towards substance misusers	14	1964–1995	Attitude	Quantitative Qualitative	Yes	3
Howard et al. 2000 II	Narrative review	Assess nurses' attitudes towards substance misusers	24	1964–1994	Attitude Beliefs Care involvement	Quantitative Qualitative	NA	3
Howard et al. 2000 III	Narrative review	Assess nurses' attitudes towards substance misusers	30	1963–1995	Attitude Beliefs Care involvement	Quantitative	NA	3
Malone et al., 2018	Systematic review and meta-synthesis	Explore the facilitators for people with mental illness to continue to smoke and the facilitators to quit smoking	15	2000–2015	Beliefs Care involvement	NA	NA	6
Okoli et al. 2010	Narrative review	Summarize research studies that address the current state of practice as well as the barriers and limitations for HCPs engagement in SC interventions among pregnant smokers	29	1990–2008	Beliefs Care involvement	NA	NA	4
Rush et al., 1994	Narrative review	Review the opinions, attitudes, beliefs, perspectives of general practitioners toward alcohol and patients with alcohol problems.	11	1982–1992	Attitude Beliefs Care involvement	Quantitative	Yes	3
Sheals et al., 2016	Systematic review and meta-analysis	Synthesize MHPs' attitudes towards smoking and smoking cessation among people with mental illnesses and/or substance abuse disorders	38	2004–2014	Attitude Beliefs Care involvement	Quantitative	NA	7
Stead et al., 2009	Narrative review	Explore European GPs' engagement in smoking cessation, and the factors and barriers that influence their engagement in smoking cessation	56	1990–2007	Attitude Beliefs Care involvement	Quantitative Qualitative	Yes	3
Van Boekel et al. 2013	Systematic review	Assess HP' attitudes towards PWA Examine factors causing negative attitudes of HP and their impact on healthcare delivery	28	2000–2011	Attitude Beliefs Care involvement	Quantitative Qualitative	NA	7

(*continued on next page*)

Table 3 (*continued*)

Reference	*Type of literature review*	*Delacred aim(s)*	*No of studies included*	*Study period*	*Stigma assessmnt*	*Stigma prevalence*	*Change in prevalence over time*	*Quality score*
Vogt et al., 2005	Systematic review	Estimate the proportion of GPs and family physicians (FPs) with negative beliefs and attitudes towards discussing smoking cessation with patients.	20	1988–2004	Attitude Beliefs	Quantitative	NA	6

Abbreviations: FPs family physicians, HPs health professionals, MHPs mental health professionals, NA not applicable.
Categories of quality were determined as follows: low (score 0 to 3), medium (score 4 to 7), and high (score 8 to 11) (Canadian Agency for Drugs and Technologies in Health 2011).

while about 50 % described the management as discouraging, hopeless, unsatisfactory, and requiring patient motivation to be successful (Howard and Chung, 2000a). Only 19 % of professionals reported treatment as rewarding (Howard and Chung, 2000a) and only 18 % of nurses to 39 % of general practitioners were motivated to manage AUD (Howard and Chung, 2000b; Rush et al., 1994).

No review provided prevalence data on health professional's beliefs regarding SUD treatment other than alcohol or tobacco.

3.2. Health professionals' characteristics (*Table 6*)

3.2.1. Addiction training

Fourteen reviews (4 LQ, 8 MQ and 1 HQ) reported consistent results about addiction training's utility to promote treatment and care of PWSUD. Nine reviews associated training in addiction medicine with a positive attitude of health professionals towards PWSUD and a better involvement in addiction care (Bakhshi and While, 2013; Ducray and Pilch, 2017; Guydish et al., 2007; Howard and Chung, 2000a, b; Okoli et al., 2010b; Rush et al., 1994; Stead et al., 2009; Van Boekel et al., 2013). Seven reviews identified lack of training of health professionals and lack of confidence in their care abilities as the main barriers to caring for PWSUD (Chandrakumar and Adams, 2015; Conlon et al., 2017; Flemming et al., 2016; Guydish et al., 2007; Malone et al., 2018; Okoli et al., 2010c; Sheals et al., 2016). One review (LQ) reported mixed results (Stead et al., 2009).

3.2.2. Personal experience of addiction or psychiatric disorder

Eleven reviews explored and reported mixed results on the benefit/risk balance of personal experience.

Three reviews (2 LQ and 1 MQ) associated the professionals' personal experience of addiction with a positive attitude toward PWSUD. Regardless of the substance, a personal history of addiction was associated with a positive attitude toward patients, optimism about the effectiveness of treatment and adherence to a disease model of addiction (Van Boekel et al., 2013; Howard and Chung, 2000a). Professionals with TUD had high skills in advising to counsel people with TUD toward smoking cessation (Chandrakumar and Adams, 2015).

Three reviews (2 MQ and 1 HQ) suggested the reverse association. They reported a personal history of TUD as a barrier to managing the patient's TUD (Conlon et al., 2017; Guydish et al., 2007; Sheals et al., 2016) and professionals with TUD provided a bad example for patients by smoking (Sheals et al., 2016).

Six reviews (2 LQ, 1 MQ and 2 HQ) showed mixed results between personal experience and health professionals' attitude (Bakhshi and While, 2013; Duaso et al., 2017, 2014; Ducray and Pilch, 2017; Howard and Chung, 2000b; Stead et al., 2009). Two of these reviews (HQ) consistently showed that smoking healthcare professionals were less likely to counsel tobacco cessation, but their smoking status had an inconsistent or nonsignificant influence on other parts of their work with people with TUD (Duaso et al., 2017, 2014).

3.2.3. Work experience with PWSUD

Four reviews (2 LQ and 2 MQ) reported that health professional's work experience with PWSUD was associated with positive attitudes (Bakhshi and While, 2013; Howard and Chung, 2000c; Rush et al., 1994; Van Boekel et al., 2013). One review (LQ) reported that professionals with less experience, but more education, had more positive attitudes (Howard and Chung, 2000a).

3.2.4. Health professional's belief

Seven reviews (2 LQ and 5 MQ) consistently showed that negative or false health professional's beliefs about PWSUD's attitude or addiction model were barriers to treatment and promoted negative attitudes towards PWSUD. Violence, manipulation or lack of motivation perceived by health professionals towards PWSUD were barriers to addiction treatment management (Conlon et al., 2017; Guydish et al., 2007; Okoli et al., 2010a; Van Boekel et al., 2013). Adherence to a moral model of addiction, in which the user was seen as responsible for his use and able to control it, was associated to negative attitudes (Van Boekel et al., 2013). According to two LQ reviews, it was also associated to avoidance of addiction care (Howard and Chung, 2000c) or social rejection of PWSUD (Howard and Chung, 2000a), while adherence to the chronic medical disease model of addiction was associated with positive attitudes (Howard and Chung, 2000a). Representation of TUD as something trivial, even therapeutically useful, can lead to negative attitudes such as advising patients in psychiatric care to smoke to regulate symptoms of their mental illness (Malone et al., 2018).

Nine reviews (4 LQ and 5 MQ) assessed and consistently showed that health professionals' positive beliefs of treatment could facilitate management of SUD, whereas negative beliefs of treatment could hinder it. Lack of perception of the caregiver's role in treatment (Conlon et al., 2017; Okoli et al., 2010a), fear of ineffectiveness (Okoli et al., 2010a; Rush et al., 1994), inducing stress or guilt in the patient (Conlon et al., 2017; Okoli et al., 2010a; Stead et al., 2009), or weakening the caregiver-patient relationship (Flemming et al., 2016; Malone et al., 2018; Okoli et al., 2010a; Stead et al., 2009) were barriers to addiction treatment. Past experiences of aggression or agitated behavior of patients were also reported as barriers for TUD treatment (Malone et al., 2018). Conversely, optimism about treatment (Bakhshi and While, 2013; Howard and Chung, 2000a) and perception of the usefulness and effectiveness of addiction treatment were associated with positive attitudes towards PWSUD (Bakhshi and While, 2013; Conlon et al., 2017; Rush et al., 1994).

For two reviews with low quality, although health professionals recognized their role in care, they could be pessimistic about the prognosis of treatment (Howard and Chung, 2000b), which they perceived as not rewarding (Stead et al., 2009).

3.2.5. Professional category, specialty work setting and education level

Only four reviews (3 LQ and 1 MQ) examined professional category.

One review (MQ) showed that nurses and nurse-assistants (NA) reported fewer stereotypical beliefs than ward managers (Van Boekel et al., 2013). One review (LQ) suggested supervisory nurses had more positive attitudes than nurses who themselves had more moralistic attitudes than physicians or social workers (Howard and Chung, 2000a) but another review (LQ) reported inconsistent results according to professional category (Howard and Chung, 2000b). When nurses were PWSUD, their managers were more inclined to take disciplinary actions,

Table 4
HPs' characteristics (professional category, speciality work setting, PWA's characteristics (addiction type, comorbidity), and HPs' or PWA's characteristics associated with HPs' attitude (age, professional category, personal experience, structural factors, addiction training, work experience in addiction speciality, speciality work setting, education level, HP's beliefs, sex, comorbidity of PWA, addiction vs. other diseases, addiction type and addiction intensity, criminal record).

Reference	*Professional category*	*Speciality work setting*	*HPs' characteristics associated with their attitude towards PWA*	*Addiction type*	*PWA comorbidity*	*PWA's characteristics associated with attitude of health professionals toward them*
Bakhshi and While, 2013	Doctors, nurses, pharmacists, dentists, midwives, nursing assistants, medecine students	Antenatal care center, emergency, gynecology, pediatric, pharmacy, primary care	Addiction training, personal experience	Alcohol	NR	NA
Chandrakumar and Adams, 2015	Nurses, nursing students	NR	Addiction training, personal experience, structural factors	Tobacco	NR	NA
Conlon et al., 2017	Cancer center directors, doctors, nurses	Oncology, otolaryngology, radiotherapy	Addiction training, beliefs (towards PWA and addiction treatment), personal experience, structural factors	Tobacco	Cancer	Comorbidity
Diniz and Caron Ruffino, 1996	NR	NR	NA	Alcohol	NR	Addiction vs other disease
Duaso et al., 2014	Doctors	Cardiology, primary care, internal medicine, oncology, surgery	Personal experience, professional category	Tobacco	NR	NA
Duaso et al., 2017	Nurses	Hospital, oncology, paediatrics, primary care, psychiatry	Personal experience	Tobacco	NR	NA
Ducray et al. 2017	Dental, medical, midwifery, occupational therapy, paramedic or social work students	NA	Addiction training, age, education level, personal experience, sex	Alcohol Substances Tobacco	NR	Addiction vs other disease
Flemming et al., 2016	Child health support workers, dieticians, doctors health visitors, midwives, social workers	Obstetric/gynecology	Addiction training, beliefs (towards addiction, addiction treatment), structural factors	Tobacco	Pregnancy Post partum	Addiction vs other disease Comorbidity
Guydish et al., 2007	Counsellors, doctors, nurses, program directors, psychologists, social workers	Addiction specialized services	Addiction training, beliefs (towards PWA, addiction and addiction treatment), personal experience, structural factors, speciality work setting	Tobacco	NR	Addiction type
Howard et al. 2000 I	Doctors, nurses, students, social workers	AIDS treatment unit, industrial medicine, public health, infectious disease units, medical-surgical units, tuberculosis sanitarium	Addiction training, age, beliefs (towards PWA, addiction and addiction treatment), education level, personal experience, professional category, sex, work experience in addiction speciality, speciality work setting	Alcohol Substances	NR	NA
Howard et al. 2000 II	Doctors (psychiatrists, GPs), nurses, nurse assistants, socials workers, various students	Addiction specialized services, general medicine, medical-surgical unit, neurology Psychiatry, sanitarium,	Addiction training, age, beliefs (towards PWA, addiction and addiction treatment), education level, personal experience, professional category, speciality work setting	Alcohol Substances	NR	Addiction vs other disease Addiction type
Howard et al. 2000 III	Doctors, nurses, supervisory nurses	Emergency departments	Age, beliefs (towards PWA and addiction), education level, professional category	Alcohol Substances	NR	Addiction vs other disease Addiction type
Malone et al., 2018	Staff	Psychiatry	Addiction training, beliefs (towards addiction and addiction treatment), speciality work setting	Tobacco	Psychiatric disorder	NA
Okoli et al. 2010	Doctors, nurses, nurse-midwives, nutritionnists, nutrition assistant, midwives, physician assistant, social workers, student midwives	Obstetric Pediatric Primary care	Addiction training, beliefs (towards PWA, addiction and addiction treatment), sex, structural factors	Tobacco	Pregnancy	Comorbidity
Rush et al., 1994	Doctors	General medicine/primary care	Addiction training, age, beliefs (towards PWA and addiction treatment), personal experience, sex, structural factors	Alcohol	NR	Addiction vs other disease Addiction type
Sheals et al., 2016	Clinical directors, clinical psychologists, counselors, doctors, medical directors, nurses, nurse managers	Psychiatry Addiction specialized servies	Addiction training, beliefs (towards PWA, addiction and addiction treatment), personal experience, structural factors, speciality work setting	Tobacco	Psychiatric disorder	Addiction type

(*continued on next page*)

Table 4 (*continued*)

Reference	*Professional category*	*Speciality work setting*	*HPs' characteristics associated with their attitude towards PWA*	*Addiction type*	*PWA comorbidity*	*PWA's characteristics associated with attitude of health professionals toward them*
Stead et al., 2009	Doctors (GPs, cardiologists, lung physicians, oncologists), nurses	Cardiology General medicine Oncology	Addiction training, age, beliefs (towards addiction treatment), personal experience, sex, structural factors	Tobacco	NR	Addiction intensity Comorbidity
Van Boekel et al. 2013	Doctors, nurses, residents, social worker practitionners, ward managers	Anesthesiology Primary care Psychiatry Addiction specialized services	Addiction training, beliefs (towards PWA, addiction and addiction treatment), education level, personal experience, professional category, structural factors, work experience in addiction speciality, speciality work setting	Alcohol Substances	HIV HCV Psychiatric disorder	Addiction vs other disease Addiction intensity Criminal record Comorbidity
Vogt et al., 2005	Doctors	General medicine/primary care	Beliefs toward addiction treatment	Tobacco	NR	NA

Abbreviations: GPs general practicionners, HCV hepatitis C virus, HIV human immunodeficiency virus, HPs health professionals, NA not applicable, NR none reported.

Table 5
Characteristics and prevalence of stigma of PWA by HPs (general attitude, health professionals' beliefs towards PWA, addiction and addiction treatment).

Expression of stigma			*Quantitative and/or qualitative prevalence*	*References*
General attitude		Negative	From 23,5% to 1/3	(Howard and Chung 2000a; Van Boekel et al. 2013)
			« generally» « consistently » « many nurses »	(Ducray and Pilch 2017; Howard and Chung 2000a; Van Boekel et al. 2013)
		Positive	« generally»	(Van Boekel et al. 2013)
			Up to 80%	(Howard and Chung 2000a)
HPs' beliefs toward PWA		Manipulative, aggressive	« often » « the most frequently »	(Howard and Chung 2000a; Van Boekel et al. 2013)
		Violent	« many nurses »	(Howard and Chung 2000a)
		Not interested, not motivated	From 27 % to 59 %; « a majority of nurses »	(Guydish et al., 2007; Howard and Chung 2000a; Sheals et al., 2016)
		Uncooperative, not honest, very demanding	From 37 % to 55 %	(Howard and Chung 2000b)
		Antisocial	25%	(Howard and Chung 2000b)
		Threat to society	From 43 % to 46 %	(Howard and Chung 2000a)
HPs' towards addiction		Disease model	« most nurses»; from 2/3 to 74 %	(Howard and Chung 2000a)
		Moral or spiritual model	1/5 of physicians, 1/3 of nurses	(Howard and Chung 2000b)
		Character weakness	From 20 % to 26 %	(Howard and Chung 2000b,c)
		Themselves to blame	Approximately 20 %	(Howard and Chung 2000b)
		Helpful to patients	From 14 % to 17 %	(Guydish et al., 2007)
		Helpful to therapeutic relationship	From 13 % to 33,5%	(Guydish et al., 2007; Sheals et al., 2016)
HPs' beliefs towards addiction treatment	TUD treatment	Negative attitude	40,5%	(Sheals et al., 2016)
		Not a priority	26,5%	(Sheals et al., 2016)
		To delay	25%	(Guydish et al., 2007)
		Quitting smoking is too much	38%	(Sheals et al., 2016)
		To treat like other SUD	71%	(Guydish et al., 2007)
		Negative impact on recovery from other SUD / psychiatric symptoms	From 18 % to 47 %	(Guydish et al., 2007)
		Fear of negative impact on professional-patient relationship	« many professionals »	(Flemming et al., 2016)
		Ineffective	From 27 % to 38 %	(Sheals et al., 2016; Vogt et al., 2005)
		Difficult	38%	(Stead et al., 2009)
		Enjoying	35%	(Stead et al., 2009)
		Unpleasant	18%	(Vogt et al., 2005)
		Too time-consuming	42%	(Vogt et al., 2005)
		Not professionals' role	From 5 % to 18%	(Sheals et al., 2016; Vogt et al., 2005)
			17,4%	(Sheals et al., 2016)
HPs' beliefs towards addiction treatment	AUD treatment	Requires patient motivation	50%	(Howard and Chung 2000a)
		Motivating	From 18 % to 39 %	(Howard and Chung 2000b; Rush et al., 1994)
		Discouraging and hopeless	About 50 %	(Howard and Chung 2000a)
		Dissatisfied	48%	(Howard and Chung 2000a)
		Satisfied	29%	(Rush et al., 1994)
		Effective	« generally »	(Howard and Chung 2000a)
		Ineffective	« generally »	(Howard and Chung 2000b)
		Rewarding	19%	(Howard and Chung 2000a)
		Optimism regarding treatment	79% « a majority » « larger proportions »	(Howard and Chung 2000b)

Abbreviations: AUD alcohol use disorder, HPs health professionals, PWA people with addiction, SUD substance use disorder, TUD tobacco use disorder.

Table 6
Association between HPs'characteristics and HPs' attitude towards PWA (training in addictology, personal experience, work experience in addiction speciality, health professionals' beliefs towards PWA, addiction, addiction treatment, professional category, place of practice, level of education, structural factors, age and gender).

HPs' characteristics		*HPs'attitude*	*References*
Addiction training	Ok	Positive	(Bakhshi and While 2013; Ducray and Pilch 2017; Guydish et al., 2007; Howard and Chung 2000a,b; Okoli et al. 2010; Rush et al., 1994; Stead et al., 2009; Van Boekel et al. 2013)
	Lacking	Negative	(Chandrakumar and Adams 2015; Conlon et al., 2017; Flemming et al., 2016; Guydish et al., 2007; Malone et al., 2018; Okoli et al. 2010; Sheals et al., 2016)
		Positive or no difference	(Stead et al., 2009)
Personal experience (personal/family history of addiction or psychiatric disorder)		Positive	(Chandrakumar and Adams 2015; Van Boekel et al. 2013)
		Negative	(Conlon et al., 2017; Guydish et al., 2007; Sheals et al., 2016; Stead et al., 2009)
		Mixed	(Bakhshi and While 2013; Duaso et al., 2014, 2017; Ducray and Pilch 2017; Howard and Chung 2000b; Stead et al., 2009)
Work experience in addiction speciality	High	Positive	(Bakhshi and While 2013; Howard and Chung 2000c; Rush et al., 1994; Van Boekel et al. 2013)
	Low	Positive	(Howard and Chung 2000a)
HPs' beliefs towards PWA	Positive	Positive	(Rush et al., 1994)
	Negative	Negative	(Conlon et al., 2017; Guydish et al., 2007; Okoli et al. 2010; Van Boekel et al. 2013)
HPs' beliefs towards addiction	Medical chronic disease model	Positive	(Howard and Chung 2000a)
	Moral model	Negative	(Howard and Chung 2000a,c; Van Boekel et al. 2013)
	Reward for good behavior	Negative	(Malone et al., 2018)
	Help to regulate mental illness symptoms/stresses	Negative	(Flemming et al., 2016; Malone et al., 2018; Okoli et al. 2010)
HPs' beliefs towards addiction treatment	Optimism	Positive	(Bakhshi and While 2013; Howard and Chung 2000a)
	Perceived effectiveness	Positive	(Rush et al., 1994)
	Perceived usefulness	Positive	(Bakhshi and While 2013; Conlon et al., 2017)
	HPs'role not perceived	Negative	(Conlon et al., 2017; Okoli et al. 2010)
	Unrewarding	Negative	(Stead et al., 2009)
	Pessimism regarding problem drinkers' prognoses	Negative	(Howard and Chung 2000b)
	Fear of ineffectiveness	Negative	(Okoli et al. 2010; Rush et al., 1994)
	Fear of inducing guilt or stress	Negative	(Conlon et al., 2017; Okoli et al. 2010; Stead et al., 2009)
	Fear of weaking professional-patient relationship	Negative	Flemming et al., 2016; Malone et al., 2018; Okoli et al. 2010; Stead et al., 2009)
	Negative past experiences	Negative	(Malone et al., 2018)
Professional category	Nurses vs supervisory nurses	Positive	(Howard and Chung 2000c; Van Boekel et al. 2013)
	Nurses vs nurse-assistants	Positive	(Howard and Chung 2000b)
	Nurses vs doctors, psychologists, social workers	Negative	(Howard and Chung 2000a,b)
	Nurses vs psychiatrists	Positive	(Howard and Chung 2000b)
Speciality work setting	Psychiatry vs primary care	Positive	(Howard and Chung 2000b)
	Specialized addiction services	Positive	(Guydish et al., 2007; Howard and Chung 2000b; Van Boekel et al. 2013)
		Negative	(Guydish et al., 2007; Sheals et al., 2016)
	Specialist doctors (not in addictology) vs not specialist doctors	Positive	(Duaso et al., 2014)
	Psychiatry	Negative	(Malone et al., 2018; Sheals et al., 2016)
	Forensic psychiatry services vs general psychiatry services	Negative	(Van Boekel et al. 2013)
	AIDS treatment unit vs infectious disease unit or medical-surgical unit	Positive	(Howard and Chung 2000a)
Education level	High	Negative	(Howard and Chung 2000a,c)
	Junior vs Senior staff	Positive	(Howard and Chung 2000a,b)
		Inconsistent	(Ducray and Pilch 2017)
Structural factors	Number of patient consultations for AUD	Positive	(Rush et al., 1994)
	Treating fewer patients per week	Positive	(Van Boekel et al. 2013)
	Existence of local smoking cessation services	Positive	(Stead et al., 2009)
	Lack of time	Negative	(Chandrakumar and Adams 2015; Conlon et al., 2017; Guydish et al., 2007; Okoli et al. 2010; Rush et al., 1994; Sheals et al., 2016; Stead et al., 2009; Van Boekel et al. 2013)
	High caseload	Negative	(Guydish et al., 2007)
	No protocol or procedure	Negative	(Flemming et al., 2016; Okoli et al. 2010)
	Understaffing	Negative	(Flemming et al., 2016; Guydish et al., 2007)
	Low role support	Negative	(Van Boekel et al. 2013)
Age	Young	Positive	(Howard and Chung 2000a,b,c; Rush et al., 1994)

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Table 6 (*continued*)

HPs' characteristics		*HPs' attitude*	*References*
		No association	(Stead et al., 2009)
		Mixed results	(Ducray and Pilch 2017)
Sex	Men vs women	Positive	(Rush et al., 1994)
		Mixed results	(Ducray and Pilch 2017; Howard and Chung 2000a)
		No association	(Okoli et al. 2010; Stead et al., 2009)

Abbreviations: AUD alcohol use disorder, HPs health professionals, PWA people with addiction.

Table 7
Association between PWA's characteristics and HPs' attitude towards PWA (addiction vs other diseases, addiction type, addiction intensity, comorbidity, criminal record).

PWA's characteristics		*HPs' attitude*	*References*
Addiction vs other diseases		Negative	(Diniz and Caron Ruffino 1996; Ducray and Pilch 2017; Howard and Chung 2000b,c; Rush et al., 1994; Van Boekel et al. 2013)
	AUD vs TUD	Positive	(Rush et al., 1994)
	TUD vs other SUD	Negative	(Guydish et al., 2007; Sheals et al., 2016)
Addiction type		Mixed results	(Howard and Chung 2000b)
	SUD vs AUD	Negative	(Howard and Chung 2000b,c)
	High vs low (TUD)	Positive	(Stead et al., 2009)
Addiction intensity	Relapse vs Recovery	Negative	(Van Boekel et al. 2013)
Comorbidity	Psychiatric disorder	Negative	(Van Boekel et al. 2013)
	Pregnancy	Negative	(Flemming et al., 2016; Okoli et al. 2010; Stead et al., 2009)
	Cancer	Negative	(Conlon et al., 2017)
Criminal record		Negative	(Van Boekel et al. 2013)

Abbreviations: AUD alcohol use disorder, HPs health professionals, SUD substance use disorder, PWA people with addiction, TUD tobacco use disorder.

Table 8
Evolution of stigma of PWA by health professionals prevalence over time.

Change in prevalence overtime	*References*
Persistence of negative attitudes	(Diniz and Caron Ruffino 1996)
Improvement of attitudes	(Howard and Chung 2000a; Rush et al., 1994; Stead et al., 2009)

Abbreviations: PWA people with addiction.

while their fellow nurses reported treatment would be beneficial (Howard and Chung, 2000c).

Six reviews (1 LQ, 4 MQ and 1HQ) consistently showed that addiction specialists, addiction professionals and addiction services, had better attitudes towards PWSUD and promoted management of SUD except for TUD where results were mixed. Medical doctors not working in addiction services were associated with the most negative attitudes, compared to all professionals working in an addiction service (Van Boekel et al., 2013). Four reviews showed a positive association between specialized addiction services or units experienced in receiving PWA and the attitude of professionals or their management of SUD (Guydish et al., 2007; Howard and Chung, 2000a, 2000b; Van Boekel et al., 2013). Although doctors more exposed to TUD in their practice were more likely to arrange a follow-up (Duaso et al., 2014), there was the same unwillingness to treat TUD, regardless of health professionals' smoking status (Guydish et al., 2007; Sheals et al., 2016), and psychiatric services were described as accepting and supportive of tobacco use (Malone et al., 2018; Sheals et al., 2016).

Four reviews (1 HQ and 3 LQ) assessed educational level or course year and showed inconsistent results. One review (HQ) reported mixed results depending of the students course year (Ducray and Pilch, 2017), two reviews (LQ) showed that senior staff had more punitive attitudes than junior staff (Howard and Chung, 2000a, b). Two reviews (LQ) associated higher nurse level of education with positive attitudes (Howard and Chung, 2000a, c).

3.2.6. *Clinical practice factors*

Nine reviews (3 LQ and 6 MQ) reported consistent results about lack of time, lack of staff especially addiction specialists and lack of specific protocols as barriers to care of PWSUD.

Lack of time was identified as a barrier to addiction treatment (Chandrakumar and Adams, 2015; Conlon et al., 2017; Guydish et al., 2007; Okoli et al., 2010c; Rush et al., 1994; Sheals et al., 2016; Stead et al., 2009; Van Boekel et al., 2013). Health professionals with a larger caseload assessed smoking less frequently (Guydish et al., 2007), whereas those treating fewer patients per week developed a more positive attitude (Van Boekel et al., 2013).

Lack of staff (Flemming et al., 2016), particularly addiction specialists (Guydish et al., 2007), and the absence of a protocol for pregnant women care (Flemming et al., 2016; Okoli et al., 2010a) limited treatment. Lack of role support in the workplace reduced the positive influence of training on the attitude of health professionals (Van Boekel et al., 2013). One LQ review reported that the accessibility of TUD treatment services would facilitate TUD screening and management according to health professionals (Stead et al., 2009).

3.2.7. *Age and gender*

Six reviews (5 LQ and 1 HQ) explored the influence of health professional age and showed mixed results. One review (HQ) showed mixed results (Ducray and Pilch, 2017), one (LQ) found no association (Stead et al., 2009), and four reviews (all LQ) linked a young age to a more positive view of addiction (Howard and Chung, 2000a, b, c; Rush et al., 1994).

Five reviews (3 LQ, 1 MQ and 1 HQ) explored the influence of health professional gender and showed mixed results. Two reviews (LQ and HQ) reported mixed results (Ducray and Pilch, 2017; Howard and Chung, 2000a), one (LQ) reported more positive attitude in men (Rush et al., 1994) and two (LQ and MQ) reported no association (Okoli et al., 2010a; Stead et al., 2009).

3.3. *Stigmatized patient's characteristics (Table 7)*

3.3.1. *Addiction vs. other diseases*

All six reviews (4 LQ, 1 MQ and 1 HQ) consistently reported more negative attitudes towards PWSUD compared to people with other diseases. More negative attitudes of professionals was reported towards PWSUD compared to people with other diseases, physical or psychiatric (Diniz and Caron Ruffino, 1996; Ducray and Pilch, 2017; Howard and Chung, 2000b, c; Rush et al., 1994; Van Boekel et al., 2013). PWSUD were considered responsible for their disorder and working with them was perceived as less rewarding (Howard and Chung, 2000c; Van Boekel et al., 2013).

3.3.2. *Substance type*

Two MQ reviews consistently showed that up to 60 % of health professionals considered TUD to be less important to treat than other SUDs (Guydish et al., 2007; Sheals et al., 2016).

According to two LQ reviews, professionals had a more negative perception of people with SUD other than alcohol (Howard and Chung, 2000b, c). According to another LQ review, there was also a more negative perception of AUD than TUD, reported as an easier issue to

raise in consultation than alcohol use (Rush et al., 1994). Furthermore, one of the reviews showed that people with AUD/SUD were perceived more negatively than TUD, but professionals' attitudes were more tolerant towards AUD/SUD due to a greater perceived need for health care (Howard and Chung, 2000b).

3.3.3. Addiction severity

One review (MQ) noted a more positive attitude towards PWSUD in recovery compared to PWSUD in relapse (Van Boekel et al., 2013). One review (LQ), in contrast, noted for TUD that health professionals were more likely to manage heavy smokers compared to light smokers, and patients with smoking related symptoms (Stead et al., 2009).

3.3.4. Comorbidities

Five reviews (1 LQ and 4 MQ) consistently reported that comorbidities and pregnancy were barriers to PWSUD treatment, especially TUD.

The same barriers to care were found in TUD when isolated or combined with cancer or pregnancy (Conlon et al., 2017; Flemming et al., 2016; Okoli et al., 2010a; Stead et al., 2009). For example, although health professionals perceived TUD treatment as worthwhile, pregnancy was seen as a difficult time to modify tobacco use, because tobacco use was seen as a source of support (Flemming et al., 2016; Okoli et al., 2010a). Health professionals reported frustration and helplessness with people whose addiction was associated with a psychiatric disorder (Van Boekel et al., 2013).

3.3.5. Criminal record

Only one review (MQ) suggested that a history of imprisonment reinforced negative views of PWSUD (Van Boekel et al., 2013).

3.4. Change of stigma prevalence over time (Table 8)

Only four narrative reviews with low quality mentioned changes in health professionals' attitudes about AUD/SUD over time between the 1960s and the 1990s and showed mixed results. One reported the persistence of negative attitudes (Diniz and Caron Ruffino, 1996) while other reviews showed more positive attitudes in the 90 s than in the 60 s as well as among more recently trained professionals. (Howard and Chung, 2000a; Rush et al., 1994). Only one other review, focusing exclusively on TUD, covered the subsequent period (1990s – 2020s) and mentioned a decrease in reluctance to speak about TUD (Stead et al., 2009).

4. Discussion

The aim of this scoping review of literature reviews was to examine stigmatization, by health professionals, of people with substance and non-substance use disorders, its characteristics and change over time. We found 19 reviews to be included none of which concerned non substance addictions. From the 19 selected reviews, if we take into account the general attitude of professionals, their beliefs towards SUD, PWSUD and their treatment, it appears that stigmatization is prevalent, contributing to a greater discrimination of PWSUD compared to other chronic diseases, including psychiatric disorders. Furthermore, albeit the diversity of the social status and impact of the different substances related to SUD, none seem to be free of stigmatization.

Addiction training and clinical experience with PWSUD were associated with fewer negative attitudes. Also, health professionals' beliefs, lack of time or support were associated with less involvement in addiction care. An AUD or SUD other than alcohol or tobacco, relapse, comorbidity or criminal records were associated with more negative attitudes. TUD has a special stigma status, considered less negatively than other addictions and perceived as a less difficult problem to tackle, but trivialized as not important for treatment or even promoting smoking tobacco as helpful, making PWSUD and TUD especially at risk of missing opportunities for treatment. The influence of several variables potentially related to stigmatization (personal experience, age, gender, education level) was inconsistent. The low quality of the reviews assessing the influence of professional category or the change of stigma over time did not allow us to draw conclusion about these aspects.

Reviews described that approximately 20 % to 51 % of health professionals may have negative attitudes or beliefs. Publications outside our review reported similar data. Forty-six percent and sixty percent of emergency room clinicians considered people with AUD and SUD as dangerous (Giandinoto et al., 2018b), respectively, and 98 % of residents considered PWSUD as difficult (Renner et al., 2009) . A significant proportion of health professionals commonly exhibited punitive attitudes (Skinner et al., 2009). Other sources confirmed the greater stigmatization of PWSUD compared to people with physical or psychological disorders (Avery et al., 2017; Dupouy et al., 2018; Giandinoto et al., 2018a; McCann et al., 2018; Ronzani et al., 2009; Skinner et al., 2009). Health professionals considered them more difficult to treat and more responsible for their disorder than people with obesity, depression or schizophrenia (Ronzani et al., 2009). Interestingly, studies reported more positive attitudes among young professionals who had recently graduated (Gilchrist et al., 2011; Kennedy-Hendricks et al., 2020; Skinner et al., 2009). However, negative attitudes increased over time during student's training (Avery et al., 2017; Fisher et al., 1975b; Lindberg et al., 2006).

The coexistence of a longtime moral model of addiction and the more recent development of the medical chronic disease model of addiction (Barnett et al., 2018), may contribute to the persistence of stigma for addiction (Avery and Avery, 2019). According to the moral model, the individual is responsible for his disorder and its resolution. According to the medical model, the individual is a victim of a disease requiring protection from society and access to treatment with proactive involvement of health professionals (Auriacombe et al., 2017; Brickman et al., 1982). This attribution of responsibility, historically associated to people with mental illnesses rather than to people with physical illnesses, resulted in less compassionate attitudes of caregivers (Weiner et al., 1988). Our review showed an association between the moral model and negative professional attitudes towards addiction and PWSUD. A recent study (Avery et al., 2020) reported this association and noted that the majority of professionals endorsed the concept of addiction as a chronic disease. However, more than half of caregivers still believed that patients were in control and therefore had the choice to use or not. The persistence of the moral model, including among health professionals of specialized addiction services (Simmat-Durand and Toutain, 2012), may be related to the fear of potential negative impact of the disease model. It could increase helplessness in relation to the perspective of an incurable disorder (Barnett et al., 2018). Hence, resistance to disengage from the moral model, although based on fear of harm for PWSUD, may nonetheless contribute to maintain stigmatization (Schmidt, 2018; Volkow, 2020) while the spread of the medical model of addiction and the existence of effective treatments, including medications, would reduce stigmatization. Training in addiction medicine and psychiatry, based on this chronic disease model may contribute to improve the attitudes of health professionals (Ayu et al., 2020; Dupouy et al., 2018; Livingston et al., 2012).

The seemingly contradictory influence of age, gender, education and experience, on stigmatization could consequently be related to the type of addiction model used for teaching and training. Professionals trained with the chronic disease model of addiction were more likely to engage in treating people with addiction using available addiction treatments (Kennedy-Hendricks et al., 2020), and had more positive attitudes, despite less work experience (Gilchrist et al., 2011; Skinner et al., 2009). Decline in professionals' attitudes during their study time could be explained by lack of training, more interaction with patients with severe addictions rather than patients in recovery, and stigmatizing attitudes of senior physician supervisors trained in the moral model (Avery and Zerbo, 2015; Miller et al., 2001).

Generally, physicians perceived more legitimacy and role adequacy

to treat addiction than nurses (Geirsson et al., 2005; Iqbal et al., 2015). Nevertheless, addiction professionals, both physicians and non-physicians, developed a better attitude than their non-specialist colleagues (Gilchrist et al., 2011; Iqbal et al., 2015; Van Boekel et al., 2014). However, it is possible that health professionals who chose to train and work in addiction services had a less stigmatizing attitude towards addiction and PWSUD prior to their training. According to one study, training improved attitudes of those with more positive attitudes prior training (Ayu et al., 2020) and addiction training may have little impact on the pre-existing negative attitudes of professionals (Crapanzano et al., 2014; D'Onofrio et al., 2002; Lindberg et al., 2006; Livingston et al., 2012). Some caregivers avoid addiction training by fear of being involved with too many PWSUD (McLaughlin et al., 2006). It has been suggested to develop training centered on stigmatization (Livingston, 2020). One study assessed the impact of specific teaching about the stigmatization of PWSUD on the attitudes of professionals (Avery et al., 2019). Residents in psychiatry and internal medicine were questioned before and six months after training on their attitude towards people with alcohol or opiate addiction. Six months later, the attitudes of the residents were better than before the training. It would therefore be interesting to develop such teaching. In addition, the wording used by professionals to describe addiction or PWSUD may also contribute to stigma. Terms lumping the person with their disorder would also contribute to maintain stigmatization (Bertholet et al., 2019; Scholten et al., 2017). Patients themselves, when questioned, avoided stigmatizing terms (Pivovarova and Stein, 2019), which would maintain the negative attitude of professionals and limit access to care (Kelly et al., 2010; Kelly and Westerhoff, 2010).

Our review showed different attitudes according to the addiction/substance type, or the presence of comorbidity. Adherence to different models depending on the type of substance could limit care, by associating, for example AUD with a more medical model than non-alcohol non-tobacco SUD (Barnett et al., 2018), or cannabis with less danger during pregnancy (Oni et al., 2019). People with TUD and people with SUD/AUD may share a negative professional's representation such as lack of motivation in care or responsibility for the onset of their disorder, as may be the case with behavioral non-substance addictions. However, we are aware that stereotypes surrounding tobacco may be less violent or negative than for other substances such as heroin or cocaine. This is why we chose to give a broad definition of stigmatization, ranging from negative beliefs (SUD, AUD) to a more insidious form of negative attitude and discrimination consisting in trivializing a real disorder with obvious consequences (TUD). This less spectacular form of stigma and discrimination occurs during pregnancy when screening may be limited by the stereotype that pregnant women do not use substances (Oni et al., 2019).

The influence of health professionals' personal experience was variable both in our review and in the literature. Health professionals with heavy alcohol use reported a better ability to treat people with AUD (Geirsson et al., 2005). However, regular alcohol and tobacco users were less likely to screen and counsel for reduced alcohol or tobacco use (Underner et al., 2006), including pregnant women (Andler et al., 2018). Nevertheless, health professionals with personal exposure to SUD adhered more to the medical model (Barnett et al., 2018). Health professionals who smoked, once in recovery, observed that their own active addiction could prevent patients from talking about their tobacco use (Underner et al., 2006). A personal history of SUD could therefore help or hinder addiction management (Ketterer et al., 2014), but required to confront their own disorder could prevent professional involvement in treatment (Miller et al., 2001).

With the development of digital medicine and artificial intelligence technologies, embodied conversational agent (ECA) designed to screen tobacco and alcohol use disorder, in individuals who did not seek medical help for these disorders are being developed. The ECA's screening capabilities were similar to that of real human professionals and it was as well or better accepted by the patients (Auriacombe et al., 2018; Philip et al., 2020). Unlike human professionals, ECA, free of any prejudice, could make access to care for PWSUD easier.

Some limitations must be considered in this scoping review. We chose to conduct a scoping review focused on literature reviews. This choice implied not to re-examine the quality or results of the studies included in the reviews, but to focus on the synthesis carried out by the authors. However, the data were more often reported in raw form, without synthesis, rather than analyzed globally by meta-analysis. We weighted our results according to the quality of the eligible reviews, using the AMSTAR checklist, and using only high and medium quality review results to draw conclusions. We also chose to consider all the reviews about stigma according to our definition (negative attitudes, negative beliefs, care involvement) without making any restriction on the evaluation methods used. We are aware that the different addictive substances have very different social status (such as legal vs. illegal) that may have an impact on the professionals' attitude. However, our review shows that stigma by health professionals occurs for all types of substances, including legal and socially accepted substances such as alcohol or tobacco suggesting that stigma may be more influenced by the addictive behavior and relapse due to impaired control of use, that is common to all SUD, then by the status of individual substances. We were unable to analyze the stigma attached to behavioral addictions due to a lack of studies.

5. Conclusions

Stigma of people with an addiction is a long-known phenomenon, shared by general population, health professionals and patients themselves. This review shows that stigma by health professionals of PWSUD is current but some variables that contribute to stigma across different substances could be changed: moral model of addiction, negative beliefs, lack of training, time, and role support. Teaching addiction according to a medical model of chronic disease, and developing stigma-focused training, could enable caregivers to reduce their negative attitudes and thus remain faithful to the principles of medical deontology. It would be interesting to develop more precise research on the evolution of stigma over time, and explore stigma related to non-substance addictions.

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CRediT authorship contribution statement

Anthony Cazalis: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **Laura Lambert:** Conceptualization, Data curation, Validation, Writing – review & editing. **Marc Auriacombe:** Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Writing – review & editing.

Declaration of Competing Interest

No conflict declared.

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