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État de santé et accès aux soins préventifs des migrants sans titre de séjour en France : rôle de la migration, des conditions de vie en France et comparaison avec les migrants en situation régulière

Health status and access to preventive healthcare of undocumented migrants in France: the role of migration, living conditions in France, and comparison with documented migrants

Sous la direction du Pr Jérôme WITTWER

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Résumés en français et en anglais

État de santé et accès aux soins préventifs des migrants sans titre de séjour en France : rôle de la migration, des conditions de vie en France et comparaison avec les migrants en situation régulière

Résumé

Les migrants sans titre de séjour (MSTS) en France constituent une population marginalisée dont la santé est peu étudiée. Cette thèse propose d'explorer l'état de santé, l'accès à la prévention, ainsi que l'articulation entre douleur et santé mentale chez les migrants sans titre de séjour, tout en analysant l'influence des déterminants sociaux de santé (DSS) et en particulier des conditions de vie sur ces différents aspects. Ce travail a été mené à partir de l'enquête Premiers Pas qui est une enquête représentative des MSTS en France et d'un échantillon représentatif des migrants avec titre de séjour (MATS) en France (enquête EHIS).

Le premier axe portait sur l'état de santé général des MSTS. Les indicateurs analysés étaient la dépression, l'asthme, l'hypertension artérielle, le diabète et l'état de santé perçu. Des prévalences élevées de dépression et de mauvais état de santé perçu étaient retrouvées avec une forte influence des conditions de vie. Après ajustement sur plusieurs DSS, les MSTS présentaient un risque plus élevé de dépression et de mauvais état de santé perçu que les MATS.

Le deuxième axe s'est intéressé à l'accès aux soins préventifs et la consommation de tabac et d'alcool. De la moitié à deux tiers des participants déclarait avoir eu accès à des soins préventifs depuis l'arrivée en France. L'accès à une couverture maladie (Aide Médicale de l'État) et le temps passé en France étaient des facteurs associés à un meilleur accès. Même si elles étaient en dessous de celles de la population générale française, les prévalences de consommation de tabac et d'alcool étaient non négligeables. Ces consommations étaient plus fréquemment retrouvées chez les hommes et chez les personnes originaires d'Afrique du Nord. Les taux de consommation de tabac étaient plus élevés chez les MSTS que chez les MATS.

Enfin, le troisième axe proposait d'analyser l'association entre douleur et santé mentale chez les MSTS. Nos résultats ont mis en évidence une association forte et persistante entre ces deux dimensions, même après ajustement sur les DSS. Ces résultats sont des arguments en faveur d'une exploration systématique de la santé mentale des MSTS consultant pour douleurs.

Ces différents axes apportent des données inédites montrant que la santé des MSTS en France est fortement influencée par les conditions de vie dégradées. Le plus mauvais état de santé mental et perçu des MSTS, arrivées plus récemment, en comparaison avec les MATS, en France depuis plus longtemps, questionne la validité des théories connues sur la santé des migrants, telles que l'«exhausted migrant effect ». Les résultats de cette thèse suggèrent que ces théories pourraient être des modèles insuffisants pour expliquer la santé des MSTS, les mauvaises conditions de vie ayant des effets significatifs sur certains indicateurs de santé. Il est probable qu'au sein même de la population de MSTS, l'effet des conditions de vie ait un impact différent selon par exemple le mode d'entrée en France (avec ou sans titre de séjour).

En conclusion, les résultats de ce travail soulignent l'importance des déterminants structuraux de la santé, tels que les politiques publiques, pour répondre aux problématiques en lien avec les conditions de vie. Des mesures telles que l'accès au marché du travail, l'accès aux logements sociaux ou la régularisation du statut administratif sont des facteurs d'intégration majeurs pouvant influencer positivement l'état de santé des MSTS. Si elle expliquait très peu les différences d'état de santé, l'accès à la couverture maladie demeure essentiel pour garantir l'accès aux soins, notamment préventifs, de cette population. Des politiques de santé plus inclusives, tenant compte des besoins particuliers des MSTS et des facteurs psychosociaux, pourraient améliorer leur intégration au sein du système de santé.

Mots-clés: **population de passage et migrants; Immigrants sans papier; santé publique; médecine préventive; état de santé; déterminants sociaux de la santé**

Health status and access to preventive healthcare of undocumented migrants in France: the role of migration, living conditions in France, and comparison with documented migrants

Abstract

Undocumented migrants (UM) in France represent a marginalized population whose health has been little studied. This thesis explores the health status, access to preventive care, and the link between pain and mental health among UM, while analyzing the influence of social determinants of health (SDoH), particularly living conditions, on these different aspects. This work was conducted using the Premiers Pas survey, which is a representative survey of UM in France, and a representative sample of documented migrants (DM) in France (EHIS).

The first focus was on the general health status of UMs. The indicators analyzed were depression, asthma, hypertension, diabetes, and perceived health status. High prevalences of depression and poor perceived health were found, with a strong influence of living conditions. After adjusting for several SDoH, UM had a higher risk of depression and poor perceived health than DM.

The second focus was access to preventive care, tobacco and alcohol consumption. Between half and two-thirds of UM reported having had access to preventive care since arriving in France. Access to health insurance (Aide Médicale de l'Etat) and length of stay in France were contributing factors. Although the rate is lower than that in the general French population, the prevalence of tobacco and alcohol was significant. These patterns of use were more common among men and UM of North African origin. Tobacco use rates were higher among UM than among DM.

The third focus of analysis examined the association between pain and mental health among UM. Our results revealed a strong and persistent association between these two dimensions, even after adjusting for SDoH. These results support the systematic exploration of mental health among UM consulting for pain.

Those different results provide evidence that the health of UM in France is strongly influenced by living conditions. The poorer mental and self-perceived health of UM, who arrived more recently, compared to DM, who have been in France for longer, raises the question of the validity of existing theories on migrant health, such as the "exhausted migrant effect". The results of this thesis suggest that migration theories could be insufficient frameworks when applied to UM whose poor living conditions have significant effects on certain health indicators. It is likely that within the UM population itself the effect of living conditions has a different impact depending on the different experiences of migration such as entering France legally or illegally.

The results of this study highlight the importance of structural determinants of health, such as public policies, in addressing issues related to living conditions. Measures such as legal access to the labor market, access to social housing, and granting residency permits are major factors in integration that provide financial and administrative stability. While it explained only a limited share of the differences in health status, access to health insurance remains essential to ensuring this population's access to healthcare and preventive care. More inclusive health policies, which consider the specific needs of UM and the influence of psychosocial factors, could facilitate their better integration into the healthcare system.

Keywords: transients and migrants; Undocumented migrants; public health; preventive medicine; health status; social determinants of health

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Reading guide/Guide de lecture

This PhD dissertation is written in English to facilitate broader dissemination and foster dialogue with non-French-speaking audiences. For French readers, a summary in French is provided at the beginning of the manuscript.

The introduction is divided into three sections that lay the conceptual groundwork for the research and justify the questions addressed during the PhD. Following the introduction, the methodology is presented, after which the three research papers are included as individual chapters. Each chapter is written as a standalone piece. To help readers navigate each paper, an abstract precedes the introduction of each chapter. The dissertation concludes with a general discussion that synthesizes the main findings, reflects on their implications, and outlines potential directions for future research. Appendices and a comprehensive list of references are provided at the end of the manuscript.

Cette thèse de doctorat est rédigée en anglais afin de faciliter sa diffusion et de favoriser le dialogue avec un public non francophone. Pour les lecteurs francophones, un résumé en français est disponible au début du manuscrit.

L'introduction est divisée en trois sections qui posent les bases conceptuelles de la recherche et justifient les questions abordées au cours du doctorat. Après l'introduction, la méthodologie est présentée, puis les trois articles de recherche sont inclus dans des chapitres individuels. Chaque chapitre est rédigé de manière autonome. Afin d'aider les lecteurs à naviguer dans chaque article, un résumé précède l'introduction de chaque chapitre. La thèse se termine par une discussion générale qui synthétise les principales conclusions, discute leurs implications et esquisse les orientations possibles pour de futures recherches. Des annexes et une liste complète des références sont fournies à la fin du manuscrit.

Summary in French / Présentation de la thèse en en français

INTRODUCTION

Partie 1 : Théories, concepts et définitions de la migration

1. Les théories de la migration

La migration, souvent perçue comme un moyen de sortir de la pauvreté, a été envisagée par Adam Smith comme la meilleure des options pour améliorer sa condition sociale. Depuis, de nombreuses théories ont vu le jour, distinguant motivations économiques (recherche d'emploi, salaires plus élevés) et non-économiques (réunification familiale, persécutions, meilleures conditions de vie). Les modèles économiques classiques ont évolué vers des approches plus complexes, intégrant des facteurs sociaux, psychologiques et politiques.

Parmi les principales théories économiques, la théorie néoclassique conçoit la migration comme une réponse rationnelle aux écarts salariaux, tandis que la nouvelle économie de la migration introduit des considérations familiales et communautaires. La théorie de la segmentation du marché du travail met en lumière le rôle structurel de la migration dans les économies, notamment dans les emplois précaires. La théorie des systèmes-monde inscrit la migration dans une dynamique de dépendance globale entre pays du Nord et du Sud. Les approches fondées sur le capital social et la causalité cumulative expliquent que les réseaux sociaux facilitent et entretiennent les dynamiques migratoires sur le long terme. Depuis les années 2000, les paradigmes migratoires évoluent avec la mondialisation, les mobilités circulaires et temporaires, et la reconnaissance des droits des migrants.

2. Concepts et définitions

Selon l'Organisation internationale pour les migrations (OIM), le terme « migrant » désigne toute personne changeant de lieu de résidence habituelle, indépendamment de sa nationalité ou de sa régularisation. La migration peut être interne ou internationale, volontaire ou forcée (conflits, catastrophes), et regroupe diverses catégories : migrants pour raisons économiques, réfugiés, demandeurs d'asile, migrants environnementaux, etc.

La migration irrégulière concerne les personnes vivant en dehors des cadres juridiques établis. Beaucoup entrent légalement avant que leur statut administratif devienne irrégulier (refus de

titre, visa expiré, changement de législation). Les migrants sans titre de séjour occupent souvent des emplois essentiels mais précaires, tout en étant intégrés dans la société, malgré leur statut légal incertain. Dans ce travail, le terme « migrant » est préféré à « immigrant ».

Partie 2 : Immigration en France, cadre législatif et accès aux soins en Europe et en France

1. L'immigration en France

Depuis le milieu du XIXe siècle, la France est un pays d'immigration. On peut distinguer trois grandes périodes. La première correspond à une période d'expansion économique marquée par une immigration de travail (1955-1973). Les flux provenaient principalement d'Espagne, d'Italie, d'Algérie, du Portugal, du Maroc et de Turquie. Puis, après le choc pétrolier, l'immigration de travail est freinée et l'immigration familiale, estudiantine ou encore les demandes d'asiles se développent (1973-2000). Enfin, depuis les années 2000 les flux sont devenus plus diversifiés avec une immigration d'Afrique du Nord, d'Afrique subsaharienne et d'Asie. Globalement, les flux migratoires en France sont stables dans le temps avec une augmentation annuelle de 0,3 à 0,4 % de la population française.

En 2022, la population immigrée représentait 10,7 % de la population française, était majoritairement en âge de travailler et était de plus en plus féminisée et diversifiée dans ses origines. Parmi les motifs de migration de long terme, la migration familiale (36 %) prédomine sur la migration de travail directe (20 %).

La population de migrants en situation irrégulière est difficile à estimer. Ils seraient entre 400 000 et 450 000 en France et représenteraient moins de 10 % des immigrés. Cette population et en particulier les migrants sans titre de séjour entrés sans visa par rapport aux migrants sans titre de séjour entré avec un visa (ayant expiré) est exposée à une forte précarité.

2. Cadre législatif et droits sociaux en Europe

La gestion des frontières européennes repose sur les principes de liberté de circulation, de sécurité des frontières, et de respect des droits humains. La crise migratoire de 2015 a vu l'émergence de dispositifs comme les "hotspots" en Grèce et des accords de contrôle externalisé avec des pays tiers (ex. Turquie, Libye) rendant la traversée des frontières plus difficile et dangereuse.

Au sein de l'Union Européenne (UE), les droits sociaux des migrants sont hétérogènes et dépendent de leur statut : citoyens européens, réfugiés, résidents de longue durée, travailleurs qualifiés, migrants ordinaires, ou sans titre de séjour. Bien que des progrès aient été faits pour certains (par exemple, égalité de traitement en matière de sécurité sociale pour les travailleurs européens), les inégalités persistent, notamment pour les ressortissants de pays tiers et les migrants sans titre de séjour. En France, l'accès aux droits repose sur la régularité du séjour, même si certaines protections sont accordées aux personnes en situation irrégulière.

3. Législation migratoire en France et accès aux soins pour les migrants sans titre de séjour

Depuis 1974, la politique migratoire française évolue dans un contexte de restriction de l'immigration de travail et de développement de l'immigration familiale. La reconnaissance progressive des droits des étrangers, notamment celui à une vie familiale normale (arrêt GISTI de 1978), marque un tournant. Dans les années 1980, les politiques se durcissent face à l'augmentation de la migration irrégulière.

La législation française sur l'immigration repose sur une hiérarchie allant des conventions internationales à la Constitution, jusqu'au CESEDA (Code de l'entrée et du séjour des étrangers et du droit d'asile). Le droit au séjour peut être fondé sur des motifs professionnels, familiaux ou personnels. Certains titres de séjour sont de droit (ex. regroupement familial), d'autres relèvent du pouvoir discrétionnaire de l'administration. Des dispositions spécifiques existent, comme le droit au séjour pour raisons médicales.

Les migrants sans titre de séjour disposent de certains droits, notamment l'accès aux soins via l'Aide médicale de l'État (AME). Ils peuvent également se marier, ouvrir un compte bancaire, inscrire leurs enfants à l'école ou accéder à un hébergement d'urgence. Depuis 2012, des procédures de régularisation par le travail existent (circulaire Valls), renforcées en 2024 pour les métiers en tension.

Au niveau européen, les migrants sans titre de séjour rencontrent de nombreux obstacles pour accéder aux soins (discrimination, barrière de la langue, crainte des autorités, coût).

Créée en 1999, l'AME permet une prise en charge des soins pour les migrants sans titre de séjour résidant en France de manière irrégulière depuis plus de 3 mois et sous conditions de ressources. Toutefois, elle ne couvre pas certains soins comme les frais optiques, les prothèses dentaires ou les frais liés à la procréation médicalement assistée. En 2023, l'AME concernait 466 000

personnes pour un coût de 1,14 milliard d'euros, soit 0,5 % des dépenses de santé françaises. Malgré cela, 49 % des migrants sans titre de séjour éligibles n'en bénéficient pas, principalement à cause du manque d'information, de la complexité des démarches à réaliser ou encore de l'insuffisance de documents.

Partie 3 : Migration et santé : théories, concepts et littérature sur la santé des migrants sans titre de séjour

1. Théories sur la santé des migrants

La santé des migrants a d'abord été perçue à travers le prisme du « migrant malade » , dominant dans les années 1960-1970 en France. Les migrants étaient alors vus comme porteurs de maladies infectieuses. Ce modèle a progressivement laissé la place à celui du « migrant en bonne santé »**,** ou *healthy migrant effect (HME)*, selon lequel les personnes qui migrent sont généralement en meilleure santé que la population de leur pays d'origine et parfois même que celle du pays d'accueil. Plusieurs hypothèses expliquent ce phénomène : une sélection à l'entrée (ceux en meilleure santé migrent), des comportements de santé protecteurs (moins de tabac, d'alcool), et une sélection à la sortie (retour au pays des migrants malades). Cependant, cet avantage initial tend à diminuer avec le temps, notamment en raison de conditions de vie difficiles, de l'usure liée au travail pénible, du stress chronique et de l'acculturation à des comportements moins favorables à la santé (*unhealthy assimilation*). La préservation d'éléments culturels d'origine (*enculturation*) et les échanges d'idées et de pratiques entre pays d'origine et pays d'accueil (*social remittances*) contribuent également à l'evolution de l'état de santé des migrants. Ces dynamiques montrent que l'intégration n'est pas linéaire et que la culture d'origine peut continuer à influencer positivement ou négativement la santé.

La santé des migrants, et en particulier celle des migrants sans titre de séjour est largement influencée par les déterminants sociaux de la santé : conditions de logement, statut migratoire, accès à l'emploi, discriminations, politiques publiques. Le statut administratif est un déterminant majeur, dont l'absence est associée à une précarité juridique, économique et sociale, qui se traduit par des conditions de vie dégradées, une surexposition à des emplois précaires, voire dangereux, un accès limité au logement, et une forte insécurité psychosociale.

Les barrières à l'accès aux soins sont multiples : coût, refus de soins, barrière de la langue, peur des autorités, complexité administrative. La peur d'être identifié et expulsé entraîne également un repli social et une sous-utilisation du système de soins**.** Même lorsque les migrants sans titre de séjour sont couverts par l'AME, leur recours aux soins reste inférieur à celui des autres populations précaires, et plus souvent limité aux soins d'urgence. Cette exclusion du système de santé aggrave les inégalités, avec des conséquences particulièrement visibles en période de crise sanitaire comme celle du Covid-19. À l'inverse, la régularisation du statut migratoire est associée à une amélioration notable de l'accès aux soins et de l'état de santé.

En somme, la santé des migrants sans titre de séjour résulte d'une interaction complexe entre les caractéristiques individuelles, le processus migratoire, et le contexte sociopolitique du pays d'accueil.

2. Que sait-on de la santé des migrants sans titre de séjour ?

La santé des migrants sans titre de séjour est peu documentée, notamment car il s'agit d'une population difficile à atteindre. De plus, les études se concentrent souvent sur ceux qui consultent un professionnel de santé, ce qui limite la représentativité. En France, Premier Pas est à notre connaissance la première étude qui s'intéresse aux migrants sans titre de séjour recrutés en partie en dehors des structures de soins.

Cette population présente un état de santé général et mental souvent plus dégradé que celui des populations générales et des migrants en situation régulière. Les troubles mentaux comme la dépression et l'état de stress post-traumatique sont élevés dans cette population et sont liés aux conditions de vies difficiles incluant l'isolement, les conditions de logement précaires et l'instabilité financière.

Le risque de maladies chroniques non transmissibles (diabète, hypertension artérielle, maladies cardiovasculaires, asthme) augmente avec la durée de séjour, en raison de plusieurs facteurs, notamment socio-environnementaux post-migration.

Les femmes migrantes sans titre de séjour sont particulièrement vulnérables, exposées à des risques accrus de complications obstétricales, de violences, et ont un accès limité aux soins de santé maternelle, reproductive et aux dépistages.

Parmi les motifs de consultation les plus fréquents des personnes migrantes sans titre de séjour retrouvés dans la littérature figurent les douleurs musculo-squelettiques, les troubles digestifs, respiratoires et cutanés, souvent liés à des conditions de travail pénibles et à des conditions de

vie précaires. Elles ont également un risque plus élevé d'admission en soins intensifs et de décès par causes externes. L'accès aux soins préventifs, comme les vaccinations ou les dépistages, reste limité, malgré l'absence de frais via l'AME. Les données sur les consommations d'alcool et de tabac sont rares.

OBJECTIFS DE LA THÈSE

L'objectif principal de cette thèse était d'étudier et d'analyser l'état de santé et l'accès aux soins préventifs des migrants sans tire de séjour en France, ainsi que l'influence des déterminants sociaux de la santé (DSS).
Cette thèse répond à plusieurs objectifs spécifiques.

Les premiers objectifs spécifiques de ce travail étaient (1) de décrire l'état de santé des migrants sans titre de séjour en France, puis (2) d'analyser au sein de cette population l'association entre les DSS et les cinq variables suivantes : diabète, asthme, hypertension artérielle, dépression et état de santé perçu. Enfin le dernier objectif (3) était de comparer ces cinq variables entre les migrants sans titre de séjour et les migrants avec titre de séjour en France.

Les deuxièmes objectifs spécifiques étaient de (1) décrire les aspects préventifs de la santé des migrants sans titre de séjour à travers l'accès aux soins préventifs et la consommation de tabac et d'alcool, puis (2) d'analyser parmi les migrants sans titre de séjour les associations entre les DSS et la réalisation du dépistage du cancer du col de l'utérus et le tabagisme. Le dernier objectif (3) était de comparer les deux populations en termes de réalisation du dépistage du cancer du col de l'utérus et de tabagisme.

Le troisième objectif spécifique était d'analyser l'association entre les douleurs reportées et la santé mentale des personnes sans titre de séjour, après contrôle des DSS. Ce dernier objectif diffère de l'approche des deux premiers et a une implication plus directe pour les professionnels de santé recevant les migrants sans tire de séjour. Dans cette population, les troubles mentaux peuvent parfois être difficiles à identifier en raison de présentations cliniques atypiques ou de symptômes qui ne sont pas spontanément signalés. La douleur étant un motif fréquent de consultation en soins primaires, documenter l'existence de ces associations permettrait de

justifier la recherche systématique de troubles de la santé mentale chez les migrants sans titre de séjour par les professionnels de santé.

METHODE

1. Description des études et populations

Cette thèse repose sur deux bases de données : l'enquête Premier Pas et l'European Health Interview Survey (EHIS).

a. L'enquête Premier Pas (PPS)

PPS est une étude transversale multicentrique, représentative des personnes migrantes sans titre de séjour vivant en France. Menée entre février et avril 2019 en région parisienne et bordelaise, elle s'appuie sur un échantillonnage aléatoire en deux étapes, dans 63 structures sociales et de santé accueillant au moins 20 migrants sans titre de séjour par semaine. Le questionnaire, traduit en 14 langues, a été administré par des enquêteurs multilingues. Au total, 1 223 individus majeurs ont été inclus dans PPS.

b. European Health Interview Survey (EHIS)

EHIS est une enquête représentative de la population française de 15 ans et plus vivant en logement ordinaire. Elle exclut les personnes en hébergement collectif ou sans domicile. Pour cette analyse, seuls les migrants de 18 ans et plus vivant en métropole ont été inclus (n = 1 478). Les personnes nées à l'étranger sans nationalité française à la naissance ont été considérées comme immigrées et présumées en situation régulière. En raison de l'échantillonnage, la présence de migrants sans titre de séjour est considérée comme marginal. La population immigrée d'EHIS peut donc être considérée comme représentative des migrants avec titre de séjour en France.

2. Les variables d'intérêt

a. Premier Pas

Les variables d'intérêt étaient les suivantes :

Pour le premier objectif : diabète, hypertension artérielle, asthme, dépression mesurée par le Patient Health Questionnaire-9 (PHQ-9) et santé perçue mesurée par le Minimum European Health Module (MEHM).
Pour le deuxième objectif (1) accès aux soins préventifs suivants : bilan de santé, dépistage de tuberculose par radiographie pulmonaire, dépistage VIH, hépatites B/C, dépistage du cancer du col de l'utérus et vaccinations et (2) consommation de tabagisme et d'alcool mesuré par l'AUDITc score.
Enfin pour le troisième objectif, les variables d'intérêt étaient d'avoir une douleur persistante ou bien une douleur musculosquelettique.

Les variables explicatives. Un ensemble de variables socio-économiques ont été recueillies et classés en groupes cohérents : caractéristiques démographiques (âge et genre), caractéristiques migratoires (région d'origine, durée du séjour en France, motifs de migration, statut administratif), caractéristiques sociales (emploi, emploi dans le pays d'origine, maîtrise du français), environnement familial (isolement), conditions de vie matérielles (type de logement, insécurité alimentaire) et accès aux soins (« Aide Médicale de l'Etat », AME).
Pour le troisième objectif, les variables d'état de santé mentale ont été utilisées comme variables explicatives : dépression mesurée par le PHQ-9, état de stress post-traumatique mesuré par le Primary Care PTSD Screen for DSM-5 (PC-PTSD-5), troubles du sommeil et anxiété.

b. EHIS

Les variables d'intérêt suivantes ont été utilisées pour les comparaisons avec PPS : (1) diabète, hypertension artérielle, asthme, dépression (PHQ-9), santé perçue (MEHM), (2) tabagisme et dépistage du cancer du col de l'utérus.

Les **variables explicatives** suivantes ont été utilisées : âge, genre, région d'origine et emploi. Bien que disponible pour les deux populations, la durée de séjour en France n'a pas été utilisée pour ajuster les modèles de compraison entre PPS et EHIS car les distribution n'étaient pas comparables entre les deux populations.

3. Analyse des données

Analyses réalisées dans PPS. Les variables d'intérêt ont d'abord été décrites puis des comparaisons ont été effectuées selon les caractéristiques de la population à l'aide d'un test du chi-2. Dans un second temps des analyses univariées et multivariées ont été réalisées à l'aide de modèles de régression logistique pour explorer les associations entre les variables d'intérêt et les variables explicatives.

Comparaison entre PPS et EHIS (migrants sans et avec titre de séjour). Les deux bases ont été fusionnées pour comparer les variables d'intérêt. Chaque variable a été d'abord comparée dans les deux populations (chi-2), puis les analyses ont été ajustées sur l'âge, le genre, l'origine et le statut professionnel (modèles de régression logistique).

4. Considérations éthiques et réglementaires

L'étude Premier Pas a été approuvée par l'IRDES et menée sous contrôle de la CNIL (n°2203002 v 0). Le consentement éclairé des participants a été obtenu. EHIS est une enquête obligatoire coordonnée par Eurostat, régie par le règlement (CE) n°1338/2008.

L'étude Premier Pas a été financée par l'Agence nationale de la recherche (ANR-16-CE36-0008).

CONTRIBUTIONS

Chapitre 1 : État de santé des personnes sans titre de séjour

L'article 1 de cette thèse a été soumis au BMC public health sous le titre "*How do living conditions and legal status affect the health of undocumented migrants in France?*".

Le premier axe s'intéressait à la description des symptômes et affections les plus fréquentes. Au total, 68,1 % ont déclaré avoir un problème de santé actuel (n = 1 188) et 33,5 % ont déclaré avoir une maladie chronique (n = 1 189). Similaires à ce qui est retrouvé dans la littérature, les troubles musculo-squelettiques (30,3 %), les troubles mentaux (27,4 %) et les troubles digestifs (12,0 %) figuraient parmi les problèmes les plus fréquemment signalés. Les problèmes dentaires figuraient également en tête de la liste des maladies déclarées par ordre de fréquence, suivis des maladies mentales et des maladies cardiovasculaires. La prévalence de la dépression (modérée ou sévère) était élevée et concernait près d'un tiers des migrants sans titre de séjour. Les prévalences des troubles du sommeil et d'anxiété étaient également élevées. Un quart des

participants déclaraient un mauvais état de santé perçu. La douleur était également souvent rapportée par les participants. Alors que deux femmes sans titre de séjour sur cinq déclaraient être enceintes ou l'avoir été dans les 12 derniers mois, la littérature retrouve des risques de complications maternelles plus élevés pour ces femmes.

En ce qui concerne le deuxième axe, plusieurs DSS constituaient des facteurs de risque de mauvais état de santé. Des associations entre les cinq variables d'intérêt (diabète, hypertension artérielle, asthme, dépression et mauvais état de santé perçu) et les DSS ont été retrouvées. Par exemple, l'insécurité alimentaire était associée à un risque plus élevé de dépression (Odd Ratio ajusté ORa= 3,05 IC à 95 % [1,58-5,89] pour la catégorie « souvent », catégorie de référence « jamais »).
Si les mauvaises conditions de vie, telles que l'insécurité alimentaire et le logement précaire, étaient associées à un risque plus élevé de mauvais état de santé (mauvais état de santé perçu, dépression et asthme), le fait de ne pas être isolé et d'avoir un emploi constituait des facteurs de protection. Les personnes entrées en France sans visa étaient plus à risque de dépression. Ces résultats concordent avec la littérature internationale montrant un impact important des DSS et des conditions de vie.

Enfin, le dernier axe retrouvait des taux de dépression et de mauvais état de santé perçu plus mauvais parmi les migrants sans titre de séjour en comparaison avec les migrants avec titre de séjour, pour les mêmes groupes de sexe et d'âge. Après ajustement selon l'âge, le genre, la région d'origine et de la situation professionnelle, la dépression (ORa= 2,35, IC à 95 % [1,85-2,99], $p < 0,001$) et la mauvaise perception de la santé (ORa = 2,49, IC à 95 % [1,89-3,29], $p < 0,001$) étaient significativement plus élevées parmi les migrants sans titre de séjour. Après ajustement, le risque d'asthme était significativement plus faible chez les migrants sans titre de séjour (Ora= 0,59, IC à 95% [0,39-0,86], p=0,006).

Chapitre 2 : Aspect préventif de la santé des personnes sans titre de séjour : accès aux soins préventifs et consommation de tabac et d'alcool

L'article 2 de cette thèse est en cours de soumission au Journal of community health sous le titre « *Understanding preventive healthcare services and substance use among undocumented migrants in France* ».

Le premier axe portait sur la réalisation de soins préventifs depuis l'arrivée en France ainsi que sur la consommation de tabac et d'alcool.

Entre un tiers et la moitié des migrants sans titre de séjour avait bénéficié de soins préventifs depuis leur arrivée. Les personnes ayant bénéficié d'un bilan de santé depuis leur arrivée en France représentaient 59,5 % (N = 1 212), celles ayant eu une radiographie pulmonaire 47,8 % (N = 1 205), celles ayant subi un dépistage du VIH 56,3 % (N = 1 197) et celles ayant subi un dépistage de l'hépatite 53,9 % (N = 1 172). En ce qui concerne la vaccination, 36,2 % (N = 1 198) ont répondu en avoir bénéficié depuis leur arrivée. Parmi les femmes éligibles au dépistage du cancer du col de l'utérus, 51,2 % (N = 357) en ont bénéficié depuis leur arrivée. Les personnes bénéficiant d'une couverture maladie (AME) avaient plus souvent bénéficié d'un bilan de santé depuis leur arrivée en France (ORa 2,23, IC à 95 % [1,24-3,99], p = 0,007). Une durée de résidence plus longue en France était associée à une meilleure utilisation des soins de santé préventifs.

Parmi les migrants sans titre de séjour, 20,8 % (N = 1 223) avaient une consommation de tabac quotidienne, 85,9 % avaient une consommation d'alcool sans risque (N = 1 223), 12,8 % présentaient un mésusage et 1,3 % une dépendance à l'alcool (soit 14,1 % qui présnetaient une consommation d'alcool à risque). En ce qui concerne le cannabis, 14,4 % (N = 1215) ont déclaré en consommer (n = 1215) : 4,7 % une fois par mois ou moins, 1,6 % 2 à 4 fois par mois, 1,0 % 2 à 3 fois par semaine, 2,2 % 4 à 6 fois par semaine et 4,9 % tous les jours. Les hommes et les personnes originaires d'Afrique du Nord présentaient des risques plus élevés de tabagisme et de consommation d'alcool à risque.

Le deuxième axe portait sur la comparaison avec les migrants avec titre de séjour. Après ajustement sur les variables sociodémographiques, les modèles retrouvaient que les migrants sans titre de séjour étaient plus susceptibles de fumer quotidiennement que ceux avec titre de séjour (ORa 1,92, IC à 95 % [1,46-2,53], p < 0,001). Les femmes avec titre de séjour étaient plus susceptibles d'être à jour pour le dépistage du cancer du col de l'utérus (aOR 8,82, IC à 95 % [5,84-13,33], p < 0,001) que celle sans titre de séjour.

Chapitre 3 : La douleur comme symptôme de santé mentale chez les personnes sans titre de séjour

L'article 2 de cette thèse a été publié dans l'International Journal of Public Health.

Moussaoui, S., Vignier, N., Guillaume, S., Jusot, F., Marsaudon, A., Wittwer, J., & Dourgnon, P. (2025). Pain as a Symptom of Mental Health Conditions Among Undocumented Migrants in France: Results From a Cross-Sectional Study. *International journal of public health*, *69*, 1607254. https://doi.org/10.3389/ijph.2024.1607254

Après ajustement sur les DSS, nos résultats ont révélé des associations significatives entre la santé mentale et la douleur chez les 1188 participants de l'étude. Les troubles du sommeil étaient associés à un risque plus élevé de douleurs musculo-squelettiques (ORa = 2,53, IC à 95 % [1,20-5,33], p = 0,014). Les résultats stratifiés ont indiqué que chez les femmes, la dépression était associée à un risque plus élevé de douleur (ORa = 4,85, IC à 95 % [1,53-13,36], p = 0,007).
Ces résultats sont cohérents avec ce qui est retrouvé dans la littérature internationale. Un mauvais état de santé mentale pourrait être prédictif de douleurs chroniques parmi la population migrante. Ce travail s'est concentré sur l'expérience de la douleur plutôt que sur son mécanisme ou sa cause.

DISCUSSION

1. Interprétations des résultats

a. Un impact négatif des mauvaises conditions de vie

Dans l'ensemble, nos résultats suggèrent un impact significatif des DSS sur l'état de santé et le recours aux soins préventifs, ce qui concorde avec la littérature. Les mauvaises conditions de vie constituaient des facteurs de risque de mauvais état de santé. L'absence de statut légal empêche les migrants en situation irrégulière de travailler légalement ou d'accéder aux logements sociaux, les confinant souvent à des emplois précaires présentant des risques professionnels.

Les personnes en situation irrégulière constituent un groupe hétérogène. L'étude Premiers Pas a montré que plus de la moitié d'entre elles sont entrées en France sans visa, ce qui semble les

exposer à des conditions plus précaires et à un accès plus faible à la couverture maladie. Dans notre étude, parmi les migrants sans tire de séjour, ceux entrés sans titre de séjour présentaient des taux plus elevés de depression que ceux entrés avec titre de séjour. Ils avaient également une perception moins bonne de leur état de santé, sans toutefois que cela soit significatif dans les analyses multivariées. Les conditions de vie plus difficiles auxquelles sont exposés les migrants sans titres de séjour entrés sans visa contribueraient au stress psychosocial, à l'isolement et à l'exclusion sociale, ce qui peut expliquer le plus mauvais état de santé mentale.

b. Un meilleur accès aux soins préventifs avec l'Aide Médicale de l'État et avec l'augmentation du temps passé en France

Les individus sans titre de séjour bénéficiant de l'AME avaient plus souvent recours aux soins préventifs. Ces résultats soulignent l'importance de maintenir et de faciliter l'accès et le renouvellement de l'AME. Améliorer l'accès aux soins en particulier préventifs serait bénéfique pour les personnes en situation irrégulière, mais également pour la santé publique et pour les dépenses du système de santé.

Avec ou sans couverture maladie, l'accès aux soins préventifs s'améliorait avec le temps passé en France. Cette observation pourrait s'expliquer par une meilleure connaissance de l'environnement, une moindre isolation et donc une meilleure compréhension du système de santé français avec le temps. Sans assurance maladie, l'accès aux services de santé préventifs est possible en France grâce à des structures fonctionnant en parallèle du système de santé conventionnel. Il s'agit notamment des ONG, des centres de dépistage gratuit des maladies infectieuses (VIH et hépatite), des centres de vaccination gratuite ou des centres antituberculeux (CLAT). Nos résultats ont montré que sans assurance maladie l'accès aux soins de santé préventifs était moins bon, ce qui souligne que ces structures ne sont pas suffisantes pour assurer cette mission et que l'accès à la couverture maladie est crucial pour cette population.

3. Les migrants en situation irrégulière présentaient un état de santé moins bon et un accès plus limité aux soins préventifs que ceux en situation régulière.

Les migrants en situation irrégulière présentaient un état de santé mental et perçu plus dégradés ainsi qu'un risque plus élevé de tabagisme, en comparaison avec les migrants en situation régulière et ce malgré une durée de résidence en France généralement plus courte. Ces résultats

remettent en question les théories sur la santé des migrants selon lesquelles les migrants primo-arrivants sont sélectionnés et ont un meilleur état de santé que les migrants du pays d'origine et du pays hôte (*healthy migrant effect*), cet état de santé se dégradant avec le temps passé en France et l'effet d'usure (*exhausted migrant effect*). La théorie du *unhealthy assimilation effect* suggère que les migrants primo-arrivants perdent progressivement les comportements bénéfiques pour la santé pour des comportements plus délétères. Le risque plus élevé de tabagisme parmi les migrants en situation irrégulière avec une plus courte durée de résidence que ceux en situation régulière ne concorde pas avec cette théorie.

L'interprétation de ces résultats est indirecte, car les modèles comparant les deux populations de migrants n'ont pas été ajustés sur les conditions de vie et de la durée de résidence. Outre l'âge, le genre, la situation professionnelle et la région d'origine, l'influence des DSS liés aux conditions de vie n'a pas pu être caractérisée dans notre étude, car les modèles multivariés n'ont pas été ajustés pour ces variables. La raison principale était qu'elles n'étaient pas incluses dans l'étude EHIS. À l'instar des conditions de vie, il n'a pas été possible d'inclure la variable liée à la durée de résidence dans les modèles multivariés, car sa distribution était trop différente entre les deux populations.

<u>Ces différences peuvent être interprétées comme suit.</u>

Nous émettons l'hypothèse que les risques plus élevés en matière de santé mentale, la perception d'un état de santé moins bon et la consommation de tabac chez les migrants sans titre de séjour par rapport à ceux avec titre de séjour sont attribuables à l'influence considérable des mauvaises conditions de vie, notamment le manque de soutien social et le stress psychosocial. La littérature montre que l'absence de statut légal peut être une source d'isolement et contribuer à la détérioration de la santé. Le statut illégal en soi n'explique pas les mauvais résultats en matière de santé, mais il est associé à des privations de droits, telles qu'un accès limité au logement social et au marché du travail, qui peuvent par exemple entraîner de faibles revenus et une insécurité alimentaire. De plus, l'absence de droit de séjour est une source de stress psychosocial, qui est associé à une santé physique et mentale plus dégradée. Tous ces facteurs n'ont pas pu être mesurés dans notre étude, mais, d'après la littérature, peuvent expliquer le plus mauvais état de santé mentale, la perception plus négative de la santé et la consommation plus élevée de tabac chez les migrants en situation irrégulière.

Outre le statut administratif, les différences entre les deux populations peuvent s'expliquer par une meilleure intégration au fil du temps passé en France. Nous n'avons pas contrôlé nos modèles avec les durées de résidence, mais les migrants en situation régulière avaient une durée de résidence plus longue que ceux en situation irrégulière. Avec le temps passé en France, l'isolement et l'exclusion semblent s'atténuer, avec un meilleur accès au logement, au travail, aux soins de santé et une meilleure connaissance du système de santé.

Le plus faible accès au dépistage du cancer du col de l'utérus chez les femmes sans tire de séjour pourrait s'expliquer par un accès plus limité à la couverture maladie par rapport aux femmes avec titre de séjour, une moindre connaissance du système de santé et un isolement social.

4. Maladies chroniques et santé mentale

Des prévalences élevées de troubles psychiques (dépression, stress post-traumatique, troubles du sommeil) et de mauvaise santé perçue ont été retrouvées dans notre étude. Ce résultat est préoccupant au regard de la surmortalité associée au fait d'avoir un mauvais état de santé perçu retrouvé dans la littérature.
Le diabète, l'hypertension artérielle et l'asthme étaient moins fréquents chez les migrants en situation irrégulière que ceux en situation régulière, probablement en lien avec un temps de séjour plus court et une moindre exposition aux facteurs de risque environnementaux. Ce plus faible risque pourrait être lié à un meilleur diagnostic de ces maladies chez les migrants en situation régulière, qui bénéficient d'un meilleur accès aux soins de santé et d'une meilleure connaissance du système de santé.

Des associations étaient observées entre douleurs (notamment musculo-squelettiques) et troubles psychiques, indépendamment des DSS. Ce résultat souligne la nécessité de dépister systématiquement une altération de la santé mentale chez les migrants en situation irrégulière consultant pour douleurs. Toutefois, les professionnels sont souvent limités dans leurs possibilités d'intervention, les soins étant difficiles d'accès pour cette population, avec ou sans AME.

Au total, ces résultats appellent à des actions politiques structurelles. Au-delà de l'accès aux soins, il est essentiel d'améliorer les conditions de vie des migrants en situation irrégulière avec l'ouverture au marché du travail, l'accès au logement social, et la légalisation du statut administratif. Ces leviers auraient un impact plus significatif sur la santé que les soins de santé.

2. Discussion méthodologique et perspectives

a. Forces et limites de l'étude

Cette étude s'appuie sur un échantillon représentatif de personnes en situation irrégulière, non exclusivement recruté en structures de soins, ce qui constitue une force majeure. La comparaison avec un échantillon représentatif de migrants en situation régulière et l'utilisation d'outils validés comme le PHQ-9 (dépression) ou le MEHM (état de santé perçu) sont également des points importants. Cependant, les différences de conditions de vie entre les deux populations n'ont pas pu être prises en compte dans les modèles statistiques, limitant l'interprétation directe des différences observées.

Certaines variables ont été mesurées par autodéclaration, exposant à des biais (sous-estimation ou surestimation). De plus, l'accès limité aux soins des migrants en situation irrégulière a pu conduire à une sous-déclaration de maladies chroniques (diabète, asthme, etc.).

b. Effets de la durée de résidence en France et du statut administratif

L'effet du temps de résidence est difficile à interpréter. Il peut être biaisé par des départs (retour au pays ou migration vers un autre pays) ou des changements de statut (passage de statut irrégulier à régulier). Le statut administratif n'est pas statique, un cinquième des migrants en situation régulière ont été en situation irrégulière à un moment donné. Les résultats sont donc à nuancer selon le profil migratoire, les migrants entrés d'emblés sans titre de séjour semblant plus vulnérables que ceux entrés avec un titre de séjour.

L'association entre le fait d'avoir une couverture maladie et le meilleur accès aux soins préventifs peut refléter à la fois un effet de la couverture elle-même, mais aussi des comportements individuels : ceux qui s'inquiètent pour leur santé cherchent davantage à se soigner, augmentant ainsi leur probabilité d'avoir l'AME.

c. Perspectives politiques et de santé publique

Les conditions de vie sont un déterminant fondamental de la santé des migrants en situation irrégulière. Des politiques publiques ciblées sur le logement, l'accès à l'emploi, la reconnaissance de statut administratif et l'inclusion sociale sont essentielles pour favoriser un meilleur état de santé. Nos résultats suggèrent que l'Aide Médicale de l'État joue également un rôle crucial dans l'accès aux soins de cette population et doit être préservé.

d. Pistes de recherche future

De nouvelles études sont nécessaires pour confirmer les hypothèses soulevées par ce travail et devraient mesurer l'évolution de la santé des migrants en situation irrégulière dans le temps et selon l'évolution de leur statut administratif, de leurs conditions de vie. Des échantillons plus larges permettraient également de mieux distinguer les profils de migrants sans titre de séjour (selon le mode d'entrée sur le territoire notamment). Ces travaux devraient être menés avec une rigueur éthique, dans le respect des populations concernées, et diffusés de manière responsable afin d'éviter toute instrumentalisation politique.

CONCLUSION

Cette étude apporte des éléments sur la santé des personnes en situation irrégulière en France et souligne le rôle central des conditions de vie. La comparaison avec les migrants en situation régulière a permis de discuter l'impact négatif des conditions de vie sur la santé. Les politiques publiques, notamment celles favorisant l'inclusion sociale, la régularisation administrative et l'accès aux services essentiels sont cruciaux pour améliorer leurs conditions de vie et leur santé. Bien qu'ayant un impact limité sur la santé des migrants sans titre de séjour dans notre étude, l'AME reste un outil clé d'accès à la prévention. Il est donc essentiel de le maintenir et de le renforcer pour garantir un système de santé plus équitable. Enfin, les futures recherches devront faire preuve de rigueur méthodologique et éthique, compte tenu de la vulnérabilité et de la stigmatisation de cette population, et leurs résultats devront être diffusés avec précaution afin d'éclairer les politiques publiques de manière responsable.

Le reste de la thèse est rédigé en anglais.

List of abbreviations

AME : Aide Médicale de l'État

CDs: Communicable diseases

CSDH : The WHO Commission on Social Determinants of Health

DMs: Documented migrants

EFTA : European Free Trade Association

EHIS: European Health Interview Survey

EME: Exhausted migrant effect

EU : European Union

HBP : High blood pressure

HME: Healthy migrant effect

IOM : International Organization for Migration

MdM : Médecins du Monde (Doctors of the World)

MIPEX : Migrant Integration Policy Index

MH: Mental healh

NCDs: Non-communicable diseases

NGOs: Non-governmental organizations

OECD: Organization for Economic Cooperation and Development

OFII: Office français de l'immigration et de l'intégration (French Office for Immigration and Integration)

OFPRA: Office français de protection des réfugiés et apatrides (French Office for the Protection of Refugees and Stateless Persons)

PASS: Permanence d'Accès aux Soins de Santé

PICUM : Platform for International Cooperation on Undocumented Migrants

PPS: Premiers Pas Study

SDoH : Social determinants of health

SMA : State Medical Aid

Teo: Trajectoire et Origine study

UAE : Unhealthy assimilation effect

UMs: Undocumented migrants

UN: United Nations

UN DESA: United Nation Department of Economic and Social Affairs

UNHCR : United Nations High Commissioner for Refugees

US: United States

WHO: World Health Organization

General introduction

First part : Migration theories, concepts and definitions

This first section sets out to introduce the thesis by discussing the main theoretical frameworks developed to explain why individuals migrate. Exploring these theories highlights the complexity of migration drivers, which are never solely individual. Applied to our population of interest, undocumented migrants, this theoretical grounding helps to contextualize individual motivations within broader structural and social dynamics, showing that personal reasons alone cannot fully capture the complexity of migration processes. Subsequently, key concepts and definitions related to migration will be presented in order to lay the foundations for this work.

A. Migration theories

Several theories have been developed to explain the reasons for migration. Among these theories, we can distinguish between purely economic theories and more complex economic theories that integrate the social sciences.

1. The theories of migration: economic or non-economic motivations

Economic theories explain that migration is driven by the desire to improve living conditions, mainly through the search for better job opportunities and higher wages. According to Adam Smith, deprived people have four options for escaping poverty: emigration, assistance, delinquency or death. Migration would thus be the least desperate option for escaping one's fate and improving one's social condition (1). He believed that the best migration policy was to have none at all. At a time when the “Poor Law” prevented them from working outside the country, Smith proposed letting the poor prospect freely on the labor market. In this way, they could rebalance wages between poor and rich countries.

In contrast, non-economic theories include factors such as family reunification, escape from conflict or persecution, as well as the desire to live in more favorable social or political conditions. Traditional economic models, such as those developed by Adam Smith, study migration motivations, based on the idea that it is a response to the search for better economic opportunities. These models evolved over time and were enriched by theories such as those of

Sjaastad or Becker (2,3). Gravitational theories conceptualize migration as a phenomenon in which migratory flows are attracted by economic opportunities in destination areas, while considering distances and psychological or social barriers. These theories are based on “push factors” in the country of origin (such as poverty or conflict) and “pull factors” in the country of destination (such as economic opportunities or a better quality of life) (4).

While health is not singled-out as a central reason for migration, health-related aspects are part of the broader economic and policy considerations affecting immigrant populations. In a context of the United States welfare reform in late 1990s, Borjas showed that despite Medicaid cutbacks, immigrants maintained health insurance coverage by increasing their labor supply (5). Health also has a selective effect on potential migrants. The healthy migrant effect, that we will develop later, seeks to explain that those who migrate are those who are in better health. Upon arrival in the country of immigration, health is also a selective factor in the labor market.
In the 1990s, the Massey Committee (IUSSP - International Union for the Scientific Study of Population) reviewed and revised the migration theories, resulting in a synthesis of the main approaches (6). Massey and his colleagues identified six main explanatory theories that we will now briefelty present.

a. Economic theories

1. The **neoclassical economic theory** sees migration as a response to wage differentials between countries (3,6). The macro-economic perspective is based on the gravity model, where migration flows respond to differences in wealth between countries, and the micro-economic perspective states that individuals make rational cost-benefit decisions to invest in their human capital (2,7–9). Migration is seen as an investment with individuals weighing costs (financial, social, psychological) against potential gains (higher income, long-term opportunities) (2,3). In his work, Massey criticizes neoclassical economic theory as outdated and unrealistic.

2. The **new economic theory of migration** explains that migration is influenced by family factors and perception of relative incomes in the society of origin (10). This builds on the neoclassical model by introducing the idea that migration is driven not just by absolute income differences between countries, but also by relative income within the migrant's community of

origin. It emphasizes social comparison, collective household decision-making, and time allocation, offering a more nuanced economic explanation of migration based on both personal and social incentives.

b. Transition to dynamic and interdisciplinary models

The study of migration has evolved to include dynamic models and a more interdisciplinary approach incorporating strategies that span the life cycle and even multiple generations (8,9). Economic models of migration have been enriched by the integration of anthropological dimensions, cognitive factors, and legal aspects (11).

3. The **labor market segmentation theory** moves from individual decisions to broader structural forces. The 'Push-Pull' model explains migration as driven by a mix of push factors (e.g., poverty, instability), pull factors (e.g., better jobs, safety), and personal perceptions, all influenced by intervening obstacles like distance or immigration policies (4). It also integrates labor market segmentation where migrants often fill unstable, low-status jobs in the secondary sector. It also includes transnationalism that views migration as a circular, ongoing process shaped by strong ties between home and host countries.

4. The **world systems theory** sees migration as an integral part of the global capitalist system. Linking transnationalism to labor segmentation, this theory views migration as shaped by global inequalities, where core countries depend on peripheral regions for labor, and migrants navigate powerful economic forces with minimal state intervention politics (7,12). Several authors such as Sassen explain that circular migration, social networks, and the structural demand for low-wage labor in global cities frame migration as a dynamic, interdependent process rooted in globalization and systemic labor supply demands (13,14).

5. The **social capital theory** emphasizes that social networks play a crucial role in facilitating migration. Social capital, as defined by Bourdieu, refers to the resources individuals access through their social networks, which play a crucial role in well-being and are particularly influential in migration processes (15). Migrants are more likely to move to and successfully

integrate into places where they have existing social ties, as these networks reduce risks, ease access to resources, and enhance the overall perceived benefits of migration (8,9).

6. Finally, the **cumulative causation theory** views migration as a self-reinforcing, dynamic process where each migration creates conditions, especially through social networks, that encourage further migration, leading to a continuous cycle known as chain migration. Rather than being driven by a single cause, migration results from an accumulation of economic, social, and cultural factors, with feedback loops that reinforce and expand migration over time.

2. Emerging paradigms in migration theory: globalization, labor demands, and migrant rights

Between 1960 and 1980, migration debates contrasted micro-level economic theories with macro-structural models focused on global labor demands, revealing that no single theory fully explains migration across all contexts (7). Since 2000, foundational theories have remained relevant but require adaptation to new realities, including the globalization of migration, the rise of circular and temporary mobility, and shifting labor needs. Piché emphasizes the urgent need to integrate migrant rights into these theories and policies, advocating for a more comprehensive, rights-based approach to migration management (7).

B. Concepts and definitions

According to F. Héran, the vocabulary of migration is caught between three uses: administrative, scholarly and popular (16). Through this section we are going to review the concepts and definitions around migration.

1. Immigrant

The most well-supported definition is provided by the United Nations International Organization for Migration. It defines immigrants from the point of view of the country of arrival and at a given point in time as “any person who changes his or her country of usual residence”(17). The definition includes short-term immigrants, as long as they have changed their usual place of

residence (17). The definition of immigrant includes both ‘foreigners’ and ‘foreign-born’ individuals and is independent of whether they later acquire the nationality of the country. Acquiring nationality does not erase the status of being an immigrant (16). Thus, a naturalized person is still considered an immigrant.

2. Migration: definition and categories

Migration encompasses the movement of individuals who leave their usual residence to settle elsewhere, either within their own country or across international borders. It can be internal migration (within a country) or international migration (across borders), usually with the aim of establishing a new, temporary, or permanent home (17).

At the international level, there is no universally accepted legal definition of a "migrant." The International Organization for Migration (IOM) defines a migrant is someone who moves from their usual place of residence—either domestically or internationally—often with the intent to settle temporarily or permanently. This term can sometimes carry ideological and ambiguous meanings. The term is often used to differentiate people based on the presumed reasons for their migration: economic migrants are typically seen as leaving for better financial opportunities, while refugees or asylum seekers are perceived as being forced to flee for political reasons (18). However, the line between these categories is often blurred, as both economic and political factors frequently overlap, making such distinctions often arbitrary.

Migration can be categorized in multiple ways based on the reason for the move and legal status. These include economic migrants, environmental migrants, and those involved in climate migration. Labor migration refers to the movement of individuals primarily for work-related purposes, either within a country or across borders.

The IOM also identifies vulnerable migrants, as a group particularly at risk of human rights violations and violence. Forced migration, refers to individuals who are compelled to move due to factors like conflict, persecution, or natural disasters.

Asylum seekers are individuals requesting international protection and whose asylum application has not yet received a final decision from the potential host country (19). If an asylum request is rejected and refugee status is not granted, the individual loses the right to asylum. In the absence of any other legal residence status, they are considered an undocumented person. The refugee status is defined by the 1951 Refugee Convention as a person who, fearing persecution due to their race, religion, nationality, membership in a particular social group, or political opinions, is

outside their country of nationality and cannot, or due to that fear, does not wish to seek the protection of that country (19).

Migrants can also be classified as irregular or regular based on their legal standing and compliance with immigration laws.

3. Irregular migration and undocumented migrants

The IOM defines irregular migration as “movement that occurs outside the regulatory norms of the sending, transit, and receiving countries” (17). Irregularity refers to a person’s status at a given moment, which can change due to evolving laws and policies (20–22).

Different situations can lead migrants to be undocumented. While some people enter the country illegally (without a residence permit), others enter with a residence permit. UMs who enter legally can find themselves in an irregular situation later, because they extend their stay beyond the expiry date of their visa (“visa overstaying”), because of rejection of asylum application, because of delayed renewal of residence permits (often due to administrative delays) or because they were unable to obtain renewal of their permit (change of laws, personal situation or because their situation no longer meets the criteria for adjudication).

Undocumented migrants (UMs) often transition between legal and irregular statuses due to bureaucratic challenges, a phenomenon called "befallen irregularity," that is particularly found in Southern Europe (23).

UMs are also essential to certain labor markets, especially in sectors like agriculture and construction, where they provide low-cost labor. The lack of accessible regular pathways indirectly sustains demand for irregular workers, contributing to exploitation and labor segmentation. Even without legal residency status, UMs often possess documents like social security numbers or local identification cards that show their integration into society. This illustrates the disconnect between migrants’ actual participation in the economy and their official legal status.

4. The choice of the term migrant in this thesis

In this thesis, we will be using the term “migrant” instead of “immigrant” to reflect a broader and more inclusive understanding of human mobility. Migrant encompasses individuals regardless of

their legal status, including undocumented populations, who are the primary focus of this research. This choice of terminology avoids the legal and permanent-residency implications often associated with the term immigrant and aligns with definitions used by the International Organization for Migration (IOM). It also reflects the current public health literature, which increasingly favors the term migrant when addressing health disparities and access to healthcare.

In this first part, we reviewed the economic and non-economic theories of migration and lay the foundations for terms and concepts related to migration. The motivations behind migration, as explained by the migration models, often conflict with legislative frameworks that do not necessarily support or facilitate migratory movements. In the following section, we will first examine immigration in France, including its history, and the contemporary immigration, before outlining the legislative frameworks governing migration in Europe and then focusing specifically on France. We will finish this second part reviewing healthcare programs for migrants especially for UMs in Europe and in France.

Second part – Immigration in France, legislative framework and healthcare programs for migrants in Europe and France

A. Immigration in France

1. Three major migratory periods in France

Since the mid of the XIXth century, France can be considered as a country of immigration. Several periods of immigration to France can be distinguished (16) .

First, the period between 1955 and 1973 corresponds to a period of economic expansion. Even after the Second World War, and despite the baby boom observed between 1946 and 1974, France remained a land of immigration. State sponsored immigration was encouraged by the need for manual workers to ensure the country's reconstruction at a period in time when the death rate almost reached the birth rate. In this post-war period, France needed manpower to develop the many industries of the century. The government encouraged immigration but wanted to be able to better control it. In this view, the ‘Office national d'immigration’ (ONI) was created in 1945 to recruit and receive foreign workers (in 1988 it becomes the ‘Office des

migrations internationales (OMI)' then in 2009 the 'Office Français de l'Immigration et de l'Intégration (OFII)') (24). The migratory wave of the 'Trente Glorieuses' saw the initial influx of Spanish and Algerian migrants, followed in the 1960s by Portuguese, Moroccan and Turkish migrants (24). By 1968, migrants represented 6.5% of the population. Three quarters of them came from Europe, including 59% from Spain and Italy, 20% came from Africa, almost exclusively the north-African region. These migrants were essentially young, single men, at least not accompanied by their wives and children in France.

Then, following the "first oil shock" of 1973-1974, Germany and then France decided to halt labor immigration, with the aim of curbing the economic recession and rising unemployment (16). As a result, migratory flows started to become disconnected from economic conditions. Immigration continued for other reasons: international students, marital migration and family reunification, humanitarian aid, asylum seekers and illegal residents awaiting regularization. From this period on, family immigration developed. Between 1975 and 1999, the migrant population grew modestly, maintaining a steady share of about 7.5% of the total population (24). However, the origins of migrants became more diverse. The proportion of migrants from Europe, especially Spain and Italy, declined, while immigration from the north-Africa, particularly Morocco, rose, alongside increases in migrants from Turkey, Cambodia, Laos, and Vietnam.

Lastly, since the early 2000s, migration flows have risen again and became more diverse, with growing numbers coming from sub-Saharan Africa and Asia, while intra-European migration has been facilitated by the freedom of movement (24). The European crisis of 2015-2018 has seen an increase in asylum applications in Europe (25). France ranked second in terms of applications after Germany (5.8%, 129,000 vs 61.1%, 755,000 for Germany of the total E.U. share) and 4th in terms of applications granted (35,170).

Over time, European migratory flows have diversified, with migrants from Asia, Latin America and sub-Saharan Africa. Gradually, flows from southern Europe dried up, giving way to immigration from the north-Africa and the rest of Africa, rising from 20% in 1975 to 43% in 2013 and 48% in 2023 (16,26).

Unlike Germany in 1990 and Spain and Italy in 2000, that saw record immigration peaks, migration flows to France have remained relatively stable and moderate since the 1970s. Over this period, migration flows hovered around 190,000, then following the 2015-2017 crisis it rose to 262,000 and in 2022, France received 294 000 new migrants (16,27) . These flows represent

an annual increase of 0.3% to 0.4% of the French population. According to F. Hérand, “migrants can make a significant contribution to a country's population without bringing massive flows” (16). This is also what the OECD points: there is nothing massive about the flows into France, but it is their accumulation over time that produces massive changes.

2. Profile of contemporary migrants in France

In 2023, migrants accounted for 10.7% of the total population in France (7.3 million of people) (26). Naturalized migrants account for approximately 34% of migrants in France (3,7% of the total population, 2.5 million) (26). According to the National institute of Statistics and Economic Studies (Insee), in 2023, 47.7% of migrants living in France were born in Africa, 32.3% were born in Europe and 14.0% in Asia. The most common countries of birth for migrants are Algeria (12.2%), Morocco (11.7%), Portugal (7.9%), Tunisia (4.8%), Italy (3.9%), Turkey (3.3%) and Spain (3.2%). Nearly half of all migrants came from one of these seven countries (47%).

Age. In 2020, migrants in France (excluding Mayotte) were, on average, 4.7 years older than non-migrants, with a median age of 46.7 compared to 42 (28). Most migrants were of working age, with 74% aged 18-64, compared to 56% among non-migrants. This is largely due to many migrants arriving in France during their early working years. Age distribution varied significantly by origin, reflecting historical and recent migration trends. Migrants from Spain and Italy were older, with many arriving before 1969, while newer flows from other parts of Europe and Africa have brought younger populations. Migration from Asia shows diverse patterns, with earlier waves of population from Southeast Asia aging, while more recent immigration population from China is younger and predominantly female.

Gender. Historically, immigration to France was male-dominated due to labor demands, but since the 1970s, it has become increasingly feminized (29). This shift began with family reunification policies and now includes women migrating independently for education or career opportunities (28). By 2021, women comprised 52% of migrants, a notable increase from 44% in 1968, with recent arrivals showing a similar trend, especially among those from Southeast Asia, China, the Americas, and north-Africa.

Profile of migration. According to OECD, in 2022, 24% of the 294 000 new migrants on a long-term or permanent basis in France benefited from free mobility, 20% were labor migrants and 36% were family members (including accompanying family) (27). Direct labor migration is not predominant as newcomers access the labor market indirectly. The right to work is often a consequence of the right to family life, rather than the other way around. Migration for humanitarian reasons were 9%. In 2023, France registered 145,000 first asylum applicants (rise of 5.5%) (27). The majority of those applicants were coming from Afghanistan (17,000), Guinea (11,000), and Turkey (9,800) (27). Of the 133,000 decisions made in 2023, 31% were positive.
As for temporary migration, approximately 98,000 international student permits and 40,000 temporary and seasonal permits were issued, excluding intra- European Union (EU) migration.

3. Undocumented migrants

In France, one in five documented migrants has been undocumented at some point during their stay in France (30).

The UM population is heterogeneous, particularly in terms of living conditions. In France, Premiers Pas study showed that a little more than half of UMs living in France entered without visa (31). The latter seemed to be more exposed to precarious situations than those who arrive legally and become irregular. The experience of irregularity seems to be more frequent among people who are socially isolated, have a lower level of education, migrate to escape poverty or to work, or come from Africa (Maghreb or sub-Saharan Africa) and live in the Paris region (30). Data illustrate that about one-third of homeless migrants are undocumented in France (30,32).

Estimations of the UM population are difficult, uncertain and only indirect (33). In few countries such as the U.S., estimates are available and provided by Homeland Security Statistics (34). The UMs population in France is difficult to estimate as no measurement to date is sufficiently robust. The estimate often made in France is based on the number of beneficiaries of health coverage specifically intended for them (Aide médicale de l'Etat, or State Medical Aid) (35). According to F. Hérand, in 2019 France had 400,000 UMs out of 4.9 million migrants, or less than 10% (36). This calculation increases the number of beneficiaries (320,000) by a quarter to consider the rate of non-use of healthcare services. The Premiers Pas study showed that this rate of non-use was of 49% (35,37). If we take the insured and beneficiaries of the AME in 2023, excluding minors

who cannot be considered irregular until they reach the age of majority, there were 217,667 in France . Thus, UMs population estimates could vary between 400,000 to 440,000 in France.
These figures are of same approximate size to those estimated by the Pew Research and vary between 400,000 à 450, 000 in 2023 (38). The methodology used to obtain theses estimates was the residual method, already used for another project (39). Authors used the following formula:

Unauthorized migrants = Total foreign, noncitizens - Authorized noncitizens				
(U)	**=**	**(F)**	**-**	**(A)**

For the total non-EU-EFTA (non-European Union-European Free Trade Association) citizen population in France **(F)** authors used annual reports of Eurostat. These reports contain estimates of the number of non-EU-EFTA citizens, or foreign citizens living in France. They are based on census data for the resident population (living for 12 months or longer), including those in overseas territories. According to INSEE (Institut National de la Statistique et des Etudes Economiques), they encompass all migrants, irrespective of their legal status. The count of authorized migrants **(A)** comes from resident permit data provided by Eurostat, specifically for permits lasting 12
It seems that around 70% of Europe's UMs in 2017 lived in Germany, the UK, Italy or France, with Germany and the UK accounting for half of UMs (33). In this method, the Pew Research Center accounted 28 countries in the European Union including the UK and four countries were included in the European Free Trade Association countries (Iceland, Liechtenstein, Norway and Switzerland). In the comparison, France had lower number of UMs when compared to other European countries. One possible explanation put forward by authors is that some UMs may gain legal residency after living there for several years and meeting specific criteria in France.

B. Regulation of migratory flows, legislative framework and social rights

The Universal Declaration of Human Rights adopted in 1948 by the 58 Member States includes the right to seek asylum (Article 14) and the right to leave one's country (Article 13) (40,41). However, a tension exists between fundamental human rights and national sovereignty, which determines whether individuals are granted specific statuses (e.g., regular, irregular, national, or

non-national), thus affecting their access to certain rights. With regard to migration, Article 13, addresses human mobility, stating the right to internal mobility and the right to leave any country, including one's own. This is a fundamental right of exit, but it can only be fully exercised if accompanied by a right of entry. States are expected to ensure that other countries are willing to accept their nationals if necessary. However, this is not always the case. Some countries offer more benefits to their citizens than others, often derived from the advantages of holding certain passports.

1. European border management policies

European border management policies have an impact on migration in France. The Schengen area, established in 1985 by France, Germany, Belgium, the Netherlands, and Luxembourg, aimed to eliminate internal border controls within its member states (42). Member states faced a "trilemma": (1) the need to allow the free movement of people for economic reasons, such as tourism and trade, (2) the need for states to maintain control over their borders and national security and (3) the obligation to uphold international and human rights law, particularly regarding the protection of asylum seekers. To address the increased migration, the EU developed different approaches.

First the system of "remote control" of its borders that significantly impacted the routes taken by migrants (43,44). It included delegating visa issuance procedures to private companies and imposing strict penalties on airlines and other transport operators for carrying passengers without valid travel documents. Asylum seekers found it increasingly difficult to reach Europe by air or sea without proper documentation, forcing them to resort to irregular and often dangerous routes.

Then, the 2015 migration crisis, particularly the influx of refugees from Syria, led to the establishment of "hotspots" on Greek islands like Lesbos (44). "The "hotspots approach," aimed to enhance border management at key entry points by to identifying, registering, and processing migrants, ensuring that those eligible for asylum receive support while others are returned to their countries of origin (45). It involved deploying European agencies like European Union Agency for Asylum (EASO) and Frontex.

Finally, faced with the limitations of internal measures, the EU pursued a strategy of "externalizing" border control (44). This involved negotiating agreements with countries outside

the EU, particularly in North Africa (e.g. Lybia) or Turkey in 2016, to prevent migrants from reaching European shores. Measures such as funding for border security and supporting the establishment of detention centers were implemented.

EU migration restriction policies seem to have failed to reduce migration, instead pushing migrants towards more dangerous, illegal routes. Strengthened border controls, closed legal pathways, and externalized border management have led to increased migrant deaths, exploitation by traffickers, and more illegal migration (46,47). According to several reports, these measures have made migration riskier and more complex, worsening migrants' vulnerabilities.

Immigration in France is governed by European legislation, but also by its own specific characteristics, particularly in terms of social rights.

2. Immigration legislation in France

a. Historical perspective

In the second period of immigration in France (from 1974), the economy downturned, labor immigration curbed, and family immigration developed. Migrants were no longer considered as only workers but also subjects of rights who form a family (16). In this context, judicial and administrative bodies, as well as associations providing legal support for migrants, came into play. Rights deriving from international conventions have been established, such as the right to marry a foreigner or the right to refuge in the event of persecution. In France, two dates mark a turning point in migration law: in December 1978 with the “Conseil de l'Etat's Gisti” ruling, and in 1991 with the new interpretation of article 8 of the European Convention on Human Rights. The Gisti ruling recognized the right to lead a normal family life, which could be invoked not only by nationals but also by foreigners legally resident in France (48).
In the 1980s, at the time when some migrants gave up the idea of returning, France saw a tightening of immigration policies in France and an increase of irregular migration.

b. Legislative framework in France

Legal entry into France is usually by visa. The French consulate abroad is responsible for processing visa applications (49,50). The grounds on which an individual can apply for and obtain a residence permit in France are set out in the "Code Entrée Séjour, Étrangers Droit d'Asile" (CESEDA, Code Entry Residence, Foreigners Right of Asylum) (51). They may relate to the right to stay for reasons connected with an activity (professional, student, etc.), for family reasons (family reunification, descendant or ascendant of a French national, spouse of a French national), or for private reasons (foreign national who is ill, arrived in France before the age of 13, etc.). Some reasons give access to a residence permit as of right (e.g. family reunification), while others are at the discretion of the prefect (e.g. long-stay student visa). The right to residency on medical grounds was created in the 1990s, at the height of the HIV-AIDS epidemic and in the context of intense mobilization by patients' and foreigners' associations to prevent the deportation of patients (49,50). The decision to issue the residence permit is taken by the administrative authority after receiving the opinion of a panel of doctors from the medical department of the French Office for Immigration and Integration, under conditions defined by decree of the Conseil d'Etat. Finally, the right to residence for EU nationals is different as they do not need a residence permit to have the right to stay.

By definition UMs are individuals who do not have a permit to stay in France. Since 2012, undocumented workers in France can regularize their status through employment if they meet specific criteria outlined in the Valls Circular, based on local government discretion. Workers must have resided in France for at least five years and have worked a certain number of months. A reform in January 2024 allows undocumented workers to apply for regularization independently, if they can prove 12 months of work in an occupation with a labor shortage (49,52).

3. Social rights for migrants

Social rights for migrants are tied both to the immediate survival challenges faced by individuals, who are often more vulnerable to poverty, and to broader considerations of social justice and citizenship (41,53). Non-nationals in the EU often face lower wages, precarious housing, and limited healthcare access compared to nationals (54–56).

In the EU, social rights are often granted depending on categories such as family members of EU citizens, migrant worker or refugees (53). This categorization legitimizes differentiated treatment and reflects the EU's selective approach to social rights for non-EU nationals.

Those rights are increasingly challenged by budgetary concerns (53). Austerity measures and political pressures have led to a rollback of rights, introducing stricter eligibility criteria. New criteria have been introduced for accessing social benefits, such as language proficiency and social integration. This evolution underscores tensions between economic priorities, national sovereignty, and the ideal of universal rights, leaving migrant protections inconsistent and vulnerable to political shifts.

Undocumented workers are entitled to some rights derived from various legal frameworks at international, EU, and national levels (57). These include equal pay, safe working conditions, paid leave, protection from unfair dismissal, access to effective complaints mechanisms, and non-discrimination in the workplace. Additionally, they can benefit from specific protections to hold governments and employers accountable, when victims of violence, exploitation, or other crimes. However, systemic barriers persist, including difficulties proving employment relationships, risks of retaliation, and a lack of safeguards to prevent immigration enforcement during complaints. While courts in many EU states do not report undocumented workers, significant obstacles remain in accessing justice and securing owed wages or compensation.

Historically, foreigners in France were excluded from rights reserved for nationals. Today, "regular residency", rather than nationality, is the key criterion for accessing social rights (58). Apart from few rights to which UMs have access in France (such as to have a bank account, the right to marriage, civil partnership, collective childcare, schooling or access to emergency accommodation) they are excluded from some fundamental rights such as social housing or legal work.

Access to healthcare is an essential right for UMs. Depending on the country in the EU, health policies differ resulting in significant disparities in terms of access to healthcare for UMs.

C. European and French health policies for undocumented migrants

1. Healthcare policies for undocumented migrants, cost and use across Europe

UMs in Europe face significant barriers to accessing healthcare, which not only compromises their health and well-being but also hinders overall public health goals (59). Legal access to publicly funded healthcare for UMs varies significantly across Europe, with many countries restricting access even to essential or emergency services (60–62). Accessing healthcare is often hindered by factors such as discrimination, language barriers, lack of interpretation services, fear of data-sharing with immigration authorities, and high out-of-pocket costs. Healthcare services that prioritize maternal and child health, as well as infectious diseases, are often provided free of charge, while chronic conditions and general adult healthcare tend to be excluded (60). Non-governmental organizations (NGOs) and civil society initiatives play a crucial role in providing healthcare to UMs. In France, medico-social units called Access to Healthcare Services Centers (les Permanences d'Accès aux Soins de Santé) deliver healthcare free of charge for individuals facing significant social vulnerability and difficulties in accessing the healthcare system including UMs (63).

2. Cost effectiveness of access to healthcare for UMs.

Restricting healthcare access may not be economically beneficial, as emergency healthcare is costly (64). Economic models demonstrate that providing primary and preventative care for UMs could reduce emergency visits and lower overall healthcare spending (65). In 2012, Spain's decision to remove healthcare access for UMs limited their ability to access primary care, likely resulting in an increased reliance on emergency services as their only available option (66). A rise in emergency room visits at hospitals in metropolitan areas and large cities was observed, where migrant populations were more concentrated.

Data shows that healthcare costs for UMs are often lower than for the general population for various reasons (60). UMs tend to be younger and healthier and often underutilize healthcare services (67). When they do use healthcare services, it is frequently inadequate or insufficient. Many UMs are unaware of their rights and encounter significant barriers when attempting to access healthcare (37).

Furthermore, while some believe offering healthcare might act as a "pull factor" for UMs, it seems that healthcare access is not a primary motivator for migration. Migration can contribute positively to the host country's economy, as evidenced by a 2020 International Monetary Fund

(IMF) report highlighting the economic benefits of migration, such as increased growth and productivity, particularly in advanced economies (60,68).

3. The healthcare insurance program for undocumented migrants in France : l'Aide Médicale de l'État

In France, migrants are entitled to healthcare insurance programs. The type of health protection they receive depends on whether their stay is regular or irregular. Foreign nationals residing in France for over three months without legal status are eligible for 'State Medical Aid' (Aide médicale de l'État, AME) (63,69). It does not cover statutory refugees or asylum seekers, as they are not considered illegal migrants. AME eligibility depends on household income, and it must be renewed annually. This insurance program covers most healthcare services at 100%, with no upfront costs for the patient. The AME does not include coverage for some care such as optical care, dental prosthetics, hearing aids, or certain additional fees charged by healthcare professionals. It also does not cover medications reimbursed at only 15%, expenses related to medically assisted reproduction, or thermal treatments. For UMs who do not meet the conditions for AME, only "urgent care" is provided, in accordance with France's international obligations.

a. History of the AME and its connection with migration policies

France has a long-standing tradition of providing public healthcare coverage to vulnerable populations (70,71). Established by the Universal Health Coverage (CMU) Act of July 27, 1999, the AME was created for UMs as they were excluded from standard health insurance due to the legal requirement of regular residency status (72). This principle of continuity of residence has governed access to social benefits for non-citizens since the August 13, 1993 law on immigration control and the conditions for entry, stay, and residence of foreigners in France.

The link between social benefits and immigration control rests on two convictions : (1) foreigners' presence in France is temporary and restricting rights might encourage their departure, (2) many foreigners migrate to France to access social benefits, a potential pull factor that increases migration (72). In response to these beliefs, professional activity was no longer required for certain benefits, but residency permits became mandatory in the 1970s.

b. Cost and expenditures related to the AME

Over time, the AME has faced numerous reforms aiming to reduce its scope. In 2002, a three-month residency requirement was introduced, later tightened in 2019 to mandate irregular status during this period.

More recently in November 2023, the Senate, as part of an immigration bill, voted to replace AME with access to urgent care only. In December 2023, the law to eliminate the AME was rejected (35). The AME expenditure was estimated at 1.14 billion euros in the initial Finance Act for 2023, which represents 0.5% of the annual French healthcare expenditure (73,74). The report debunked two arguments for restricting: (1) the AME is not an immigration pull factor, and many migrants are unaware of AME's existence (2) there is no evidence of overuse of AME compared to equivalent income insured individuals (35,75).

According to the Évin-Stefanini report, 466, 000 people were beneficiary of the AME in 2023 (+ 13,5 % when compared to the end of 2022) and at the end of 2019 (year of our study) it was of 334,546 (35).

c. The AME access and barriers to take-up

The AME covers 51% of eligible UMs in France, with women more likely to be covered than men (37,76). The length of stay is the primary factor influencing coverage. Individuals residing in France for over five years are 46.6 % more likely to be covered compared to those living there for more than three months but less than one year. Despite extended stays, nearly 40% of individuals remain uncovered after four years, indicating persistent barriers to integration and access.

Another main barrier to the opening of rights is informational challenges. Among uncovered eligible UMs, 31.6% are unaware of the program, 30.6% do not understand the application process and 22.4% mistakenly believe they are ineligible. Bureaucratic hurdles are also barriers to take-up as 20.1% of uncovered eligible individuals lacked documents proving their resources or residence duration

In this second part, we examined legislative frameworks including social rights for migrants and UMs in both Europe and France. We then narrowed our focus to healthcare insurance programs for UMs, first at the European level and then specifically in France.

In the third part, we will present and discuss migration theories related to health as described in the literature, including the social determinants of health framework. We will also review existing evidence on the health of UMs found in the academic literature.

Third part - Migration and health: theories, concepts and evidence on the health of undocumented migrants

A. Theories on migrant health: the hypotheses raised and how they are demonstrated in the literature on immigration in France

Theories have been put forward to explain the health status of migrants and how it evolves during and after migration (77). The aim of this section is to introduce these theories and discuss them in the light of data from the scientific literature on immigration in France.

1- From the sick migrant paradigm to the healthy migrant effect

a. The sick migrant paradigm.

In the 60s and 70s, French doctors were encountering or re-encountering imported diseases such as bilharziasis or tuberculosis. The dominant model was then the sick migrant (78). According to the “sick migrant paradigm”, migrants were carriers of disease, and the populations of host countries needed to be protected from them. This paradigm was at least partly a product of the socio-political context of the period (79). Today in France, this idea of protecting the public’s health and economic well-being from imported disease is still present (80). However, evidence support that there is a very low risk of transmitting communicable diseases from the migrant population to the host population (81). Overtime the literature on migrant’s health, moved from a vision focused on health safety to one more concerned with equity of care, the right to health and the social determinants of health (81).

More recently, the literature has highlighted a mortality differential in favor of migrants. These observations have given way to an antinomic paradigm: the healthy migrant effect.

b. The healthy migrant effect

The 'healthy migrant effect' (HME) hypothesis suggests that migrants are healthier on average than the population in their country of origin, as healthier people are more likely to migrate, and the opportunities in the host country are higher for healthy migrant workers (82,83).

Literature shows that migrants have a mortality advantage over the general population of the host country (84). This advantage is likely representative of migrants who are studying, working, or reuniting with family in the host country and may not reflect marginalized migrant groups, as limited data is available for these populations.

In Europe, the HME has been described since decades but seems to vary depending on several factors including the country of origins (85–87). In France, migrant health became a research focus in the 1990s (86). Significant lower mortality rates have been observed among foreign-born populations compared to populations born in the host country (86,88,89). These effects are influenced by factors like age, gender and country of birth (90–92). Educational selectivity is also a key factor as the effects are more pronounced among migrant with social class advantages before migration (93).

The shift from work-related migration to family reunification and raise of asylum-seeking involved a change in migration patterns over time (85). Newer cohorts were often less healthy (89,94). Poorer living conditions and lower education levels were identified as strong influencing factors (95). Health outcomes varied by country of origin, with those from wealthier countries generally exhibiting better health (96).

The interaction paradigm introduces a third model to the "sick migrant paradigm" and to the "healthy migrant effect" (79). It theorizes the complexity of the mechanisms at play, considering the 2 models (sick migrant paradigm and healthy migrant effect) as well as the social determinants of health (socio-environmental factors). Health outcomes are not solely determined by individual characteristics or the migration process alone but are shaped by the interaction of these factors within the host society. These include pre-migration experiences (such as exposure to trauma), migration stressors (e.g., discrimination, resettlement challenges), and post-migration conditions (such as socioeconomic status and access to healthcare).

c. How can lower initial mortality be explained?

As these different models are descriptive but not explanatory, this section sets out the different hypotheses that explain the mortality advantage of migrants (77).

Selection at entry. This is a major explanatory hypothesis for the lower mortality rates and better health of migrants (77). It states that those who migrate are healthier and economically less disadvantaged.

Healthier habits, tied to cultural factors and better lifestyle habits, is a second explanation. On arrival, some populations of migrants have more favorable health behaviors. For example, alcohol consumption is lower among migrants from North Africa, and tobacco consumption is lower for the same age and level of education (although, as we will see later, the longer they live in France, the more they catch up) (97).

Selection at exit (salmon bias). The salmon bias is a process that mirrors selection at entry, also known as unhealthy return migration (98,99). What is observed is a preferential return to the country of birth of migrants in poor health who then disappear from the statistics, showing a migrant mortality advantage (MMA) (100,101). In France, an excess mortality rate among migrants returning to their country of birth was observed using the national fund for retirement (102,103). When returns are considered, the MMA is less pronounced (104,105).

The HME is complex and is more or less pronounced depending on several factors including living conditions. Literature shows that health capital evolves with time spent in the host country.

2- An initial health advantage for migrants that evolves with time spent in the host county.

Context during migration and after arriving in the host country influence health of migrants. In this section, theories on the evolution of health in host country will be discussed.

Evidence shows that the initial good health status of migrants on arrival does not remain and is likely to deteriorate with time spent in the host country. Several complex mechanisms may explain this trend: the ‘exhausted migrant effect’ and the ‘allostatic load’, the acculturation and the ‘unhealthy assimilation effect’, the weight of social determinants of health, living conditions

and a more difficult access to securities such as work rights and healthcare. Nevertheless, a number of protective mechanisms play a part in this evolution: acculturation can sometimes be protective of health and social remittances can act as a protective factor.

a. The exhausted migrant effect and the allostatic load theory

The exhausted migrant effect. The term ‘exhausted migrant effect’ refers to a deterioration of health advantage as the length of stay in host countries increases (106,107). This decline arises from several factors that interact together including individual predispositions (e.g. genetic factors), migration-related challenges (e.g. stresses of resettlement, poor living conditions, limited social networks, restricted access to healthcare, unemployment, discrimination) and abandon of protective health behaviors (108). In the labor market, migrants face greater work-related hardship, both physical and psychological, due to lower overall qualifications and limited transferability of pre-migration skills (85). They are often concentrated in lower-skilled, monotonous jobs with intense work schedules, limited decision-making autonomy and personal growth opportunities (109,110). Work-related hardship which is a form of wear and tear on employees, is characterized by daily discomfort and a potential reduction in life expectancy (85,109). Stronger concentration of migrants in more strenuous jobs contributes to the deterioration of their health over time and to the "exhausted migrant effect".

The allostatic load theory. This term refers to a biological theory of adaptation to physiological stress. It represents the cost to the body of maintaining stability amidst change and cumulative "wear and tear" on the body because of repeated or chronic stress (106,111). The “allostasis” refers to "stability through change" (including neural, neuroendocrine, and immune responses) and plays a crucial role in maintaining the body’s balance (or homeostasis). When these adaptive systems are activated and deactivated efficiently, and not too frequently, the body can effectively cope with challenges (111). When these systems are overstimulated or fail to function, an "allostatic load" occurs. The cumulative effects of lifelong stress could contribute to allostatic load and lead to diseases. Literature on general population suggest that childhood adversities are biologically internalized. Graded associations between self-reported childhood difficulties and outcomes such as multimorbidity, individual disease burden, and biological disruptions are

described (112). In the context of migration chronic stress induced by limited access to social resources or discrimination, can cause prolonged over- or underactivity of the body's allostatic systems, leading to an increased allostatic load and contributing to various health issues (113–115).

b. Acculturation and unhealthy assimilation effect

Acculturation. The concept of acculturation describes the cultural changes resulting from continuous contact between groups with different cultures (36). Although the definition varies, acculturation can be defined as “the process by which individuals adapt to a new living environment and potentially adopt the norms, values, and practices of their new host society” (37–47). It is a complex and dynamic process that can be affected by many factors such as societal structures and policies (48).

Initially defined collectively by anthropologists in the 1930s, it later evolved in the 1960s to focus on individual experiences of identity, values, and behavior changes, with Berry's model identifying four strategies: marginalization, separation, assimilation, and integration (49). Despite criticisms, this model has influenced extensive research in psychology and related fields like medicine and public health, where acculturation is studied as a factor in health inequalities. The "single continuum" model suggests that migrants gradually accept the host culture, which in turn accepts them, leading to assimilation and a mono-cultural society (106,130). The "two-culture" model highlights scenarios where migrants either accept or reject the new culture, leading to marginalization (where they neither adopt the new nor retain the old culture) or separation/segregation (where they isolate themselves by maintaining their own culture). Finally, the "multidimensional" model involves integration, where migrants retain their own culture while also forming ties with the host culture. This model emphasizes a dynamic acculturation process, with cultural mixtures occurring in different contexts, such as assimilation at work but cultural separation in personal practices like food habits. When measuring the role of acculturation, the use of multi-dimensional models that consider societal contexts is encouraged (50). However its measurement is complex, and the risk of stigmatization is high (36). In public health, proxies such as nativity or generational status, timespan since first arrival in the country or fluency in the host country language are used to measure acculturation. (39,44)

Discrimination, socioeconomic status, and barriers to healthcare should be considered in this measurement (36,51).

Literature on the relationship between acculturation and health in migrant populations is important but mostly North American. It can either be healthy behaviors such as a better oral health or unhealthy behaviors such as the adoption of “Western diet», or vaccine hesitancy (51,60–63).

Unhealthy assimilation effect. The term ‘unhealthy assimilation’ is used to describe the notion of convergence of migrant’s health outcomes or health behaviors toward the native-born, the initial health outcomes/behaviors being better. This effect is driven by acculturation towards unhealthy behaviors and is consistent with the declining health status of migrants the longer they remain in the host country.

The effects of acculturation after migration are the most well documented on dietary habits. Acculturation may be associated to worst dietary pattern and an increased risk of obesity over time (136–140). Then, the HME may weaken with increased acculturation (65). In North America, recent migrant cohorts tend to arrive with higher obesity rates and undergo a more rapid "unhealthy assimilation" regarding weight gain (141,142). Acculturation is complex and influenced by socio-economic factors and living conditions. Dietary habits are influenced by acculturation but also food insecurity. The development of conditions such as obesity and other metabolic disorders among children and adults are influenced by the adoption of “Western diet” but also less access to healthier food due to financial constraints for example (69).

Higher use of tobacco and cannabis (97,144), negative attitudes towards vaccines (145–148) as well a as worse mental health (149,150) are found among migrants with higher level of acculturation. Migrants can face acculturative stress defined as “a stress reaction in response to life events that are rooted in the experience of acculturation” (49). This form of stress is tied to the challenges of adapting to a new environment, with language barriers, discrimination, and loss of social status. Acculturative stress is associated to negative health behaviors such smoking and a higher risk of suicidal tendencies (72).

c. Enculturation and social remittances

Enculturation. While assimilation involves adopting the practices, values, and identity of the receiving culture while discarding those of the heritage culture, enculturation, refers to selectively retaining elements of one's heritage culture while acquiring aspects of the receiving culture (129,152–154). In some contexts, cultural persistence in health capital among first- and second-generation migrants seem to align closely with ancestral country norms (155). Culture endures over generations and even appears to grow stronger with time.

Social remittances and health impacts. Remittances are financial or in-kind transfers sent by migrants to their communities of origin. The term "social remittances," introduced over 15 years ago, refers to the exchange of ideas, practices, skills, identities, and social capital that accompany monetary transfers in migration, flowing between sending and receiving communities (156). A systematic review found that transnational social exchanges (such as such as emotional support, healthcare advice or traditional healing) significantly influence the health of both migrants and those who remain behind (157).

3- The social determinants of health

a. Definitions and frameworks

Social determinants of health (SDoH) are "the non-medical factors that influence health outcomes" (158). They encompass the environments where people "are born, grow, live, work, and age", along with broader forces such as economic policies, development strategies, social norms, and political systems that shape daily living conditions (159). The SDoH significantly contribute to health inequities (158). In the WHO conceptual framework, structural determinants of health inequities include social, economic, and political systems. Those determinants create socioeconomic positions and stratify populations by factors such as income, education, and race/ethnicity (160). Structural SDoH are the most powerful determinants of health as they have the greater impact that individual determinants.

b. Migrant status as a major social determinant of health.

Migration is a SDoH that influences social relationships and lived experiences (161). Beyond cultural adaptation, immigration involves navigating complex social, political, and economic systems that shape health outcomes. Migrants and ethnic minorities typically face poorer health outcomes than the majority population, influenced by age, gender, and socioeconomic factors. These groups also endure compounded disadvantages due to racialization, lower social status, and adverse contextual factors.

c. Socio-economic and political context

Socio-political environment and socio-economic status often influence health outcomes of migrants, especially undocumented migrants (UMs) (162).

Impact of immigration policies on social dynamics. Governments' approaches to immigration significantly shape how migrants and the public perceive and interact with one another (163–165). Restrictive policies play as a 'vicious circle' for exclusion and inclusive policies induce a 'virtuous circle' of integration (163,164,166). Regular and positive interactions between migrants and non-migrants can create a greater sense of belonging, well-being and political participation (167).

Impact of immigration policies on health. 'Migrant-friendly policies' are associated with better health and less unmet health care needs (168,169). Health inequalities between migrants and natives are most pronounced in 'exclusionist' countries, where disparities persisted even after accounting for socio-economic factors (170). Anti-immigration policies are associated with reduced access to health services and negative mental health outcomes among UMs (171,172). Racism, stigma, prejudice, and discrimination negatively affect health (29,173,174). Discrimination limits access to healthcare, influencing health-seeking behavior and leading to worse health outcomes (175–177).

d. Socio-environmental context and psychosocial circumstances

Living conditions. Unequal access to the labor market and worse living conditions contribute to differences in health status between documented migrants (DMs) and UMs (178–182). In France, UMs have limited access to legal recognition and cannot legally work or be allocated social housing (183–185).

UMs workers often endure substandard labor conditions, including low pay, excessive hours, lack of sick leave, holidays, and health and safety protections (57,162,179,183,186–189). These jobs are often called “dirty jobs” or “3D jobs” (dangerous, dirty and degrading) and expose them to various occupational risks. The literature shows that poor working conditions are linked to adverse health outcomes among UMs (188,190,191). For instance, physically demanding jobs have a negative impact on UMs self-rated health (186). Gendered work sectors exacerbate inequalities. Women in domestic and care roles have a heightened risk of harassment, abuse and homelessness if dismissed. Micro-level lived experiences of migrant workers are connected to macro-level social policies (such as legislative and enforcement).

Housing instability, rental insecurity, and living in unsafe or disadvantaged neighborhoods are associated with adverse health outcomes such as poorer mental health (depression, anxiety, or psychological distress) (192,193). UMs are at increased risk for some health conditions due to their irregular status and the effects of economic and social marginalization (194). UMs with access to private housing often live in overcrowded, unhealthy conditions with high rents, which negatively impact their rights, including health and education (195,196). Poor housing conditions pose significant health risks, especially for undocumented children, who face hazards like asthma, lead poisoning, and carbon monoxide exposure. During the Covid 19 pandemic, UMs faced higher infection rates due to socioeconomic instability but also inappropriate housing including unhygienic and overcrowded spaces where maintaining social distancing was impossible (162,197). Homelessness significantly affects children's physical and mental health, education, and social well-being (198,199).

In France, UMs exposed to poor living conditions such as food insecurity are at higher risk of chronic viral infection (200). UMs present worse health, mental health and self-perceived health status when compared to general population (194,201,202).

Psychosocial circumstances. UMs are exposed to adverse psychosocial circumstances including psychosocial stressors, stressful living circumstances and lack of social support (162). Stigmatization, structural violence, and fear are part of UMs daily lives and influence their health

(177). The difference in administrative status between UMs and DMs has an impact on health. Lacking the right to remain is source of psychosocial stress. In Switzerland obtaining a residence permit had a positive impact on mental health status of migrants (203–205). Isolation and social exclusion due to fear of deportation are also factors experienced by UMs that are likely to impact their physical and mental health (194,206). These factors will lead to self-isolation and a reluctance to seek help when needed. Authors described the “chilling effect” as migrants' avoidance of healthcare for fear of being confronted by law enforcement agencies (176,207). Poorer physical and mental health have been observed with these effects (208,209).

e. Access to the healthcare system

Barrier to healthcare access for UMs. Healthcare access is a political determinant of health for migrants, especially for UMs. UMs face barriers in accessing health care services (210,211). Three main barriers to healthcare seem to emerge from the literature among UMs: delay of care, denial of care and insufficient funds to cover emergency hospital expenses or medical consultations (212,213). In France, UMs who benefit from AME are less likely to secure a medical appointment (54). In Sweden, some UMs in maternity services are treated based on perceived 'deservingness' (214). Pregnant UMs, despite being eligible for free maternity care, were often denied services due to their inability to pay formal taxes or lack of settled immigration status. Healthcare providers were found to make decisions influenced by ethnicity, residency status, and English proficiency. Additional challenges include language barriers, fear of racism, concerns about data sharing with immigration authorities, and unaffordable out-of-pocket costs (60)

The underutilization of the healthcare system by UMs. In France UMs covered by the AME seem to have similar patterns of ambulatory healthcare use as non-migrants with the same level of income (75). However, they had lower use of dental and optical care as it is poorly covered by the AME. UMs generally access health services less frequently than DMs and when they do, the care provided is often inadequate or insufficient (67,215). Studies show that UMs with non-communicable diseases (NCDs) like asthma, hypertension, or diabetes are less likely to seek primary care and often avoid hospitalization. As a result, they seek healthcare when their conditions have reached an advanced stage. During the Covid-19 pandemic, UMs showed higher vulnerability and seeking assistance was perceived as a risk for the renewal or future approval of

a residency permit (216). Conversely, findings confirm that regularizing residence status is linked to better healthcare access among migrants (217). UMs women seem to underutilize maternal and child healthcare services often because of lack of knowledge of the healthcare system and fear of deportation (218,219).

In this section, we reviewed the different theories on migrant's health, upon arrival and with time spent in France. Then we looked at the literature on the social determinants influencing migrant and especially UM's health. In the last section we will review evidence on UMs health.

B- What do we know on undocumented migrant health ?

In this section we will present evidence of UMs health and describe how they are tied to SDoH. Literature on UMs health is scarce. One of the major limitations of data available on health status of UMs is that it represents only those who seek care. In France, to the best of our knowledge, no study on UMs health recruited outside of healthcare exist. Premier Pas is the first (37,70,71,75,220,221).

1. Perceived health and mental health

The literature suggests that UMs present worse health status and perceived health status when compared to general population and DMs (67,171,182,188,201,205,222).

Mental health (MH) is often deteriorated among UMs (223). In France, one out of six UMs suffer from PTSD (221). Despite methodological limitations and sample representativeness issues, most studies reported significantly higher rates of these conditions compared to the general population and other migrant groups. Among migrants, MH conditions are linked to political context in pre-migration and post-migration context as well as socio-economic and living condition in the host-country such as work, social support and insecure housing (224). Among UMs evidence also shows that mental health is associated to SDoH including social isolation, exposure to abuse or financial instability, poor working condition, food insecurity and housing instability (178,210,224–226,226–228). A longer period of residence in the host country is described as associated to a poorer MH among UMs (229). Barriers to accessing psycho-social healthcare among this population is frequent and is amplified by

the absence of health insurance coverage, beliefs or taboos on mental health problems as well as a lack of trust in the general practitioner's competencies for treating mental health conditions (210,227,230). In contrast, social support and engagement in community activities have been described as a protective factor for mental health (224,226,230). Gaining documented status in the host country have positive effects on mental health among this population (225,231).

2. Non-Communicable diseases (NCDs)

The term *health transition* is used to designate the transition from morbidity and mortality before migration, due to infectious diseases more prevalent in developing countries to morbidity and mortality after migration, due to NCDs, in a context of increasing availability of care and relative improving material living conditions (232). This transition is rapid in terms of the availability of care and treatment (therapeutic component of the health transition), but slower for changes relating to the development of cardiovascular risk factors (particularly myocardial infarction) and certain cancers (risk factor component). The result is an initial advantage in terms of mortality for migrants from low-income or less urbanized societies. However, this initially advantage do not last and raise of NCDs such as cardiovascular disease, diabetes, high blood pressure and asthma occur during time.

Available data among UMs suggest non-negligeable rates of on chronic conditions, although these vary according to the populations studied, including age, place of recruitment and country of origin (233). Being undocumented is a risk factor for delayed access to care, to regular supply of medication for patients with chronic conditions and, in case of acute health conditions, a risk factor for difficulty in accessing immediate medical care (181,187,234–236).

The political and legal context, and individual socioeconomic position influence access to healthcare for UMs with NCDs such as cardiovascular diseases, diabetes, cancer and chronic respiratory diseases (215).

a. Cardiovascular risk and diseases, diabetes and high blood pressure (HBP)

Among migrants, the healthy migrant effect for cardiovascular diseases seems to diminishe with the time spent in host country (237–240). Cardiovascular diseases are influenced by several factors including individual, environmental and socioeconomic factors (81). Risk factors for conditions like

ischemic heart disease and stroke vary between different migrant groups and often differ across states.

Gender health disparities are pronounced among UMs with women experiencing higher rates of multimorbidity, diabetes and HBP compared to men (215,241,242).

Differences of prevalence are observed depending on the country of origin. In Italy, UMs from sub-Saharan Africa presented high prevalence of HBP and UMs from north-African high prevalence of diabetes (243–245). UMs seemed to declare diabetes at a younger age than non-migrant and presented complications of diabetes more often (215,244,246). Other European studies did not find differences in the prevalence or length of stay according to UMs characteristics (215,241,242).

b. Causal pathways for associations between diabetes and HBP with migration.

Migration from low to high income countries can increase the risk of type 2 diabetes. The causal link is multifactorial, complex and includes genes and shared family habits, but also environmental factors such as pre-migration history (nutritional supply, health history) and post-migration history (health system and policies, food environment, migrant generation (247). Those factors interact with socioeconomic circumstances (income, education, neighborhood safety, access to food supply), behavioral and biological factors (physical activity, smoking), access to healthcare (health literacy, cost of access), physical and psychosocial stress (discrimination, social cohesion). All those factors induce epigenetic modification and impaired insulin secretion and action. For HBP, similar factors are observed. Stress, change of diet (higher use of salt for example) and sedentarity (less walking and more sitting and use of car for example) contribute to the causal pathway of developing HBP (248).

c. Asthma

Asthma and allergic disease prevalences seem to increase with time spent in the host country and are higher among the second-generation migrants compared to first-generation migrants (249,250). This trend is consistent across studies, populations, and age groups, with significant differences observed based on migration age and duration of stay. It seems that change of environment and living conditions play a role in this increase. To explain this development, authors have hypothesized an allergy “catch-up” in which the immune system is reprogrammed in response to a new environment

if exposure lasts long enough (251). To the best of our knowledge, no study describes this pattern among UMs.

3. Women's health.

UMs women are more exposed to poverty, unstable living conditions, exploitation, abuse, and health risks, including complications during pregnancy (212). The lack of legal status often restricts access to social services, health care, and safe employment, pushing many into informal or unsafe work and housing (252). UMs women also encounter language barriers, isolation, and limited control over abusive relationships, impacting their children. Policies, including regularization requirements in shelters, often reinforce dependency on male partners, increase the risk of deportation, and create financial burdens, further marginalizing these women. UMs women face higher risks of maternal and perinatal outcomes (253). Those outcomes include higher maternal mortality, severe acute maternal morbidity, higher risk of preterm birth and low birthweight. On top of limited access to essential maternal and child healthcare services, UMs women often avoid those services due to fear of deportation and insufficient information (67,214,254). Evidence show that pregnant UMs women are at high risk of delayed or lack of antenatal care contributing to poor outcomes such as higher rates of infectious diseases, stillbirths, preterm births, low birth weight, and maternal mortality (60,215,254–258).

UMs women also face have limited access to reproductive healthcare and worse reproductive health outcomes such as higher risks of unintended pregnancies, sexual violence, sexual transmitted infections, and unsafe abortions (259). Barriers to reproductive health services include fear of discrimination, limited mobility, and inadequate provider training.

Beyond reproductive and maternal care, lack of confidence and fear seem to influence breast and cervical screening as well as pelvic exams and decision about treatment (215,260–262). Fear does not only concern legal status but also fear of pain, discomfort or fear of embarrassement (261–263). Lack of knowledge and language skills on the language of the host-country seems to negatively impact rates of cervical and breast cancer screening participation and HPV vaccination among UMs women (262). When compared to DMs, UMs in the US presented breast cancer at an earlier age and the diagnosis is more often made in an advanced stage (264).

4. Symptoms and conditions most commonly encountered among UMs who seek care

Among UMs who seek primary care, digestive, musculoskeletal as well as respiratory and gynecological symptoms are the most frequent motive for consultation (227,242,242,245,265).

Pain is a frequent reason for consultation that initiates a first contact with the host country's healthcare system (266,267). The literature suggests that pain, musculoskeletal in particular, is often experienced by UMs (227,242). Pre- and post-migration living conditions are associated with chronic somatic expressions of pain (268). UMs often earn an income in manual and physically demanding employment that can induce, maintain or increase musculoskeletal pain (269–273).

When compared to documented migrants and non-immigrants, UMs seem to have a higher risk of being admitted in intensive care unit (ICU) (274). The main causes are shock, post-operative care and trauma. UMs males have an increased risk of dying from external cause (accident for example) when compared to DMs (275,276).

Skin conditions are prevalent and from the literature seem to be more common among UMs as compared to DMs (181,233). Some skin disease or symptoms are more frequent in case of precarious living conditions (such as scabies or pediculosis) (277). They also can reflect communicable diseases (CDs), NCDs including stress, anxiety (psoriasis) and environmentally mediated diseases (278).

Dental problems seem to be a frequent issue among migrants, especially UMs (234,279–283). Migrants often exhibited inadequate oral health practices and relied more frequently on emergency services compared to the host population (220,284). Social support, both structural and functional, significantly enhances oral health outcomes for migrants and ethnic minorities facing challenges in new countries (285).

5. Prevention and substance use

Access to preventive care is limited and even when the access is free just like the case of Covid-19 vaccine. In the French PREVAC study, the access to Covid-19 primary vaccination was positively correlated with having a residency permit and having health coverage (286). In France, organized screening for colorectal, breast and cervical cancer is done by mail (287). Although access is possible

and free for UMs with the AME (excluding those without AME), they are not included in this public health strategy

Little data was found on substance use among UMs. Smoking rates seem to have risen among individuals with an migrant background in France, even as tobacco control efforts have intensified, and smoking rates have declined in the general population (288). A study conducted among Latino adolescents in families with UMs in the US showed that adolescent stress from limited parental involvement increases the likelihood of lifetime cigarette and marijuana use, even after adjusting for factors like gender, age, and peer influence (289). Girls had a higher likelihood of lifetime alcohol use, while family economic stress was not linked to substance use.

OBJECTIVES OF THE THESIS

The main objective of this thesis was to explore and analyze health status and access to preventive care of UMs and the influence of SDoH.

This thesis answers several specific objectives.

The **first specific objectives** of this work were to (1) provide a description of health status of UMs in France, then (2) analyze among UMs the association between SDoH and five NCDs as health outcomes : diabetes, asthma, HBP, depression and self-perceived health and (3) compare those five outcomes between UMs and DMs.

The **second specific objectives** were to (1) describe preventive aspects of UMs health through access to preventive healthcare and tobacco and unhealthy alcohol use, then (2) analyze among UMs associations between SDoH and, cervical cancer screening and tobacco use and (3) finally compare UMs with DMs for those two outcomes.

The **third specific objective** was to provide an analysis on how pain is associated to mental health conditions among UMs, after controlling for SDoH. This last objective is more practical and differs from the approach of the first two. Among migrants, mental health conditions can sometimes be difficult to identify because of atypical clinical presentations or symptoms that are not spontaneously reported. Since pain is a frequent motive for consultation in primary care settings, providing evidence for these associations could help healthcare providers to screen for mental health disease when UMs express pain issues.

METHODS

A. Description of the studies and populations

Two databases were used in this thesis: the Premier Pas Study and the European Health Interview Survey.

1. Premier Pas Study

a. Study design

Premiers Pas is a multicentric cross-sectional study representative of UMs living in France. It was carried out between February and April 2019 in the Parisian and Bordeaux regions. The representativeness of this population is ensured by several factors. First, the selection of UMs was carried in two levels: (1) facilities receiving at least 20 UMs per week were randomly selected, and (2) among the selected facilities, a random sample of UMs was selected. Also, the Bordeaux and Paris regions have large migrant populations and account for half to two-thirds of Aide Médicale de l'Etat beneficiaries (35,38,290,291).

Individuals were randomly selected from 63 structures that provide support or assistance to deprived or migrant individuals, in the Parisian and Bordeaux region (292).

Non-healthcare structures missions varied from social services for homeless people to support on legal, administrative or health insurance issues. Those structures included, "Espace Solidarité Insertion" which offers a daytime shelter and social and health services for homeless people, Non-Governmental Organizations (NGOs), local health insurance centers ("Caisses Primaires d'Assurance Maladie") wich operates at a departmental level and deal with several benefits/allowances for insured people such as sickness, pregnancy, invalidity or death, shower baths, the Point of Access to Rights ("Point d'accès aux droits") which is a free and permanent

reception area providing information, orientation and local advice in response to legal or administrative problems,

The health-care structures were NGOs or publicly funded structures that offer healthcare more often free of charge. These structures included: hospital Health Insurance Access Services ("Permanence d'Accès aux Soins de Santé") that provide social assistance and healthcare to vulnerable populations but that exists only in some cities, free health centers of Doctors of the Word ("CASO"), maternal and child protection centers ("Protection Maternelle et Infantile") which is a departmental service responsible for ensuring the health protection of mothers and children.

Fourteen different languages were used to translate the questionnaire and interact with participants: English, Spanish, Russian, Albanian, Portuguese, Arabic, Dari, Chinese, Tamil, Pashto, Bengali, Pulaar, and Bambara. Individuals were interviewed by investigators speaking the language of the interviewee.

b. Population

The population was exclusively composed of UMs. Inclusion criteria were to be undocumented and aged more than 18 years old.

A total of 1223 participants were included in PPS. Articles were published previously by the IRDES team (31,292–294).

2. European Health Interview Survey

a. Study design

EHIS is a health survey conducted every six years in the 28 countries of the European Union (295). It is a representative survey of the French population aged 15 years or older living in ordinary housing. The population was randomly drawn from individuals registered with the tax authorities

(for income tax, council tax or both) and those declared as having an ordinary dwelling (excluding people housed in shelters, collective housing or homeless).

b. Population

Given the sampling, the presence of undocumented individuals can be considered marginal, and the two samples distinct. Thus, migrants from EHIS can be considered as documented migrants (DMs). In order to identify migrant individuals, place of birth and the nationality at birth were used. Those born without the French nationality in a foreign country were considered as migrants. A total of 14192 individual were included in EHIS and 1478 were migrants. For our study, we used the 2019 data from migrants aged 18 years or more living in metropolitan France.

B. Variables of interest

1. Premier Pas Study

The questionnaire used for data collection is provided in **appendice 1.** Throughout 118 questions, the survey collected information on migration to France, living conditions in France, administrative status, the status of their health, access to insurance and healthcare. Among those questions, 31 were about health and healthcare: chronic diseases, addictions, perceived health status, mental health, symptoms. To ensure representativity and to correct for non-response, data was weighted on the basis of the probability of inclusion.

a. Outcomes

First objective. Participants were asked if they were experiencing any of the following condition: diabetes, high blood pressure (HBP), cancer, cardiovascular, respiratory, infectious, skin, joints and muscles, liver, neurologic, or gynecologic diseases, mental health conditions or other. If the individual answered yes to one of the organ-related condition, more specific questions were

asked to specify the disease or the symptom. In different questions, participants were asked if they had chronic disease/condition, whether they had dental pain, missing or broken teeth or infected teeth (cavities). Pregnancy status in the last 12 months was collected.

Independently to the answer to the main question, all respondents were screened for depression with the Patient Health Questionnaire-9 (PHQ-9) (296). The cutoff score of 10 or more was used to estimate moderate to severe depression (297).

Self-perceived health was assessed using Minimum European Health Module (MEHM) (298). Self-perceived health is a global measure that encompasses different dimensions of health, such as "physical, social and emotional function as well as biomedical signs and symptoms" (299). To the question "How is your health in general?", the MEHM has five possible answers : "very good – good – fair – bad - very bad". We built a binary variable as follows: "very good – good – fair" as good self-perceived-health and "bad - very bad" as poor self-perceived health. In this paper, we used the category "poor self-perceived health" to describe perceived health in order to stay in line with the four other outcomes that represent a pathological status (298).

Second objective. Access to prevention was assessed through six variables. Participants were asked if since their arrival in France, they have benefited from a check-up, a chest x-ray (for tuberculosis screening), HIV screening, hepatitis B and C screening, vaccination and, for women, a cervical cancer screening (pap smear test). We chose to analyze those preventive healthcare services because they are recommended by several medical societies in the 4 months upon arrival (300). Tuberculosis screening concerns at-risk populations, which represent the majority of our sample (sub-Saharan Africa and North Africa in particular). If the answer was yes, they were asked when the preventive care was received: 'less than 1 year', '1 to 2 years' or '3 to 5 years.

For cervical cancer screening, the national recommendation in 2019 was to perform cervical cancer screening every 3 years for women aged between 25 to 65 years old (301). In Premier Pas study, we categorized as not up to date for cervical cancer screening women between 25 to 65 years old, who did not have cervical cancer screening since arrival in France or who had the screening more than 3 years ago.

To assess substance use, participants were asked if they were smoking. Three answers were possible: 'yes, daily', 'yes, occasionnally', 'no'. Alcohol consumption, misuse and dependence were assessed through the validated AUDITc score (302). Through three questions, the score identifies 3 consumption profiles: risk-free consumption, misuse, and alcohol dependence. Finally, cannabis use was assessed using the following question: "Have you used cannabis in the last 12 months?' ('yes' or 'no').

Third objective. Data on pain experienced at the time of the study were collected, and the pain experienced included abdominal, musculoskeletal, headache/migraine, and chest or pelvic pain. A binary variable, "all pain", was created (musculoskeletal or abdominal, or headache/migraine or chest or pelvic pain) from the variables related to the different types of pain. As we were more interested in the experience of pain than its mechanism or cause, this grouping seemed justified and, at the same time, enabled us to increase the power of our analyses. Owing to the sample size, the comparative analyses were performed only on musculoskeletal pain and on the variable "all pain".

b. Explanatory variables

A range of socioeconomic indicators were collected and categorized into coherent groups according to the following: demographic characteristics (age and gender), migration characteristics (region of origin, time since arrival in France, motives for migration, administrative status), social characteristics (having a job, job in the country of origin, fluency in French), family environment (isolation), material living conditions (housing type, food insecurity) and access to care ("Aide Médicale de l'Etat", AME").

To answer to the third objective, mental health related variables were used as explanatory. Mental health was assessed through several questions. The participants were asked if they were currently experiencing various conditions, including mental health conditions. If a participant answered "yes" for a mental health condition, then follow-up questions were asked to clarify whether they were experiencing a sleep disorder or anxiety. For depression, we used the Patient Health Questionnaire-9 (PHQ-9) and a cutoff score of 10 or more to estimate moderate to severe

depression (73). PTSD was assessed with the Primary Care PTSD Screen for DSM-5 (PC-PTSD-5) (74). A score of three or above was used as the threshold for diagnosing PTSD. Depression and PTSD were assessed with the PHQ-9 and the PC-PTSD-5, respectively, for all participants regardless of their answers to the general question.

2. European Health Interview Survey

The questionnaire used for data collection included information about the household (age, gender, occupational situation, housing, healthcare insurance), then questions pertaining the participant (country of origin, educational level, health, access to healthcare, lifestyle, support network, financial and social support, mental health, tobacco and alcohol use). To ensure representativity and to correct for non-response, data was weighted on the basis of the probability of inclusion.

a. Outcomes

First objective. The outcomes we used for the comparison with PPS were diabetes, high blood pressure, asthma, depression using PH9 and a cutoff score of 10 or more to estimate moderate to severe depression and self-perceived health (using MEHM).

Second objective. The outcomes we used for the comparison with PPS were smoking and cervical cancer screening (302). Women were asked when they last received cervical cancer screening: ‘less than 1 year’, ‘1 to 2 years’, ‘2 to 3 years’, ‘3 to 5 years or ‘more than 5 years. To ensure representativity and to correct for non-response, data was weighted on the basis of the probability of inclusion.

b. Explanatory variables

The data included in our analyses from EHIS were age, gender, place of birth, length of residence in France and having a job.

C. Data analysis

1. Analyses within Premiers Pas Study

We described the health outcomes and the population using percentages. Then the health outcomes were compared according to the population characteristics using a chi-square .

To explore associations, logistic regression models were used. Univariate and multivariate analyses were performed on the PPS data between health outcomes and explanatory variables. When an association was significant in the univariate analysis, we performed multivariate analyses.

For the third objective, pain and the different mental health variables were first compared in univariate analyses. When an association was significant in the univariate analysis, we performed multivariate analyses, adjusting for socioeconomic variables.

A difference was considered significant when the p value of the crude odds ratio (OR) for the univariate result was <0.200. The threshold of significance was 0.05 and 95% confidence intervals were used.

All analyses were performed with Stata© 15.1 software (StataCorp, College Station, TX, USA).

2. Comparison of UMs population from PPS to DMs population from EHIS

In a second step, the following outcomes from PPS (UMs) were compared to the DMs from EHIS : (1) diabetes, HBP, asthma, depression and poor self-perceived health, and (2) smoking and cervical cancer screening. For this purpose, the two databases pertaining the two samples (EHIS and PPS) were pooled.

For each outcome, the two populations were compared depending on age and gender, using percentages and chi-square test.

Multivariate analyses were performed between the health outcomes and a binary variable reflecting the population UMs/DMs (explanatory variable). Models were adjusted for age, gender, region of origin and job status.

D. Regulatory and ethical considerations

1. Ethics approval and consent to participate

The Premiers Pas Study involving human participants was reviewed and approved by the Institute for Research and Documentation in Health Economics board. Informed consent for participation was obtained from each participant in accordance with the national legislation and the institutional requirements. Participation in the survey was free and anonymous.

The study was conducted under the control of the CNIL (Commission nationale de l'informatique et des libertés, registration number: 2203002 v 0). CNIL, is an independent French administrative authority responsible for guaranteeing the respect for anonymity, privacy and the protection of personal data.

The European Health Interview Survey is a mandatory survey (binding on questionnaire form and content) for EU member countries (European Commission Regulations n°141/2013 of February 19, 2013 and n°2018/255 of February 19, 2018), overseen by Eurostat. The EHIS legal framework is governed by Regulation (EC) No. 1338/2008 of the European Parliament and the Council, dated 16 December 2008, which pertains to Community statistics on public health, and health and safety at work.

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Chapter 1 : Health status of undocumented migrants

A. Introduction

The health of undocumented migrants (UMs) in France is little known especially outside of healthcare settings. The objective of this study was to describe the health status of UMs in France and to analyze the influence of the social determinants of health (SDoH) on four main reported conditions and self-perceived health. The secondary objective was to compare UMs with documented migrants (DMs) for those five outcomes.

B. Article submitted to the BMC Public Health journal

How do living conditions and legal status affect the health of undocumented migrants in France?

Title: **How do living conditions and legal status affect the health of undocumented migrants in France?**

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Summary

Background. The health of undocumented migrants (UMs) in France is poorly understood, especially outside of health care settings. This study aimed to describe the health status of UMs in France and to analyse the influence of the social determinants of health (SDoH) on four main reported conditions and self-perceived health. The secondary objective was to compare UMs with documented migrants (DMs) for those five outcomes.

Methods. The Premiers Pas study (PPS) is a cross-sectional survey that is representative of UMs aged 18 years or older living in France. The study was performed between February and April 2019 at sixty-three sites. The participants were asked if they had current health conditions and if they had chronic conditions. The 2019 European Health Interview Survey (EHIS), which is representative of the French population, was subsequently used to compare UMs with DMs. Five outcomes were compared: diabetes, high blood pressure (HBP), asthma, depression (using the PHQ-9) and self-perceived health (using the Minimum European Health Module). Logistic regression models were used to explore associations between the five outcomes and (i) SDoH among UMs and (ii) administrative status (UMs vs DMs).

Results. Among UMs, 68.1% reported having a current health condition (n=1188), and 33.5% reported having a chronic condition (n=1189). Musculoskeletal (30.3%), mental (27.4%) and digestive (12.0%) conditions were among the most reported conditions. Dental problems were also at the top of the list of reported diseases in order of frequency, followed by mental diseases and cardiovascular diseases. Several SDoH were risk factors for poor outcomes. For example, food insecurity was associated with a greater risk of depression ('often' aOR=3.05 95% CI [1.58–5.89]). The prevalence of depression and poor self-perceived health was significantly greater for UMs than for DMs for the same gender and age groups. After adjusting for age, gender, region of origin and job status, depression was higher (aOR=2.35 95% CI [1.85–2.99], p<0.001), and poor self-perceived health was worse (aOR=2.49 95% CI [1.89–3.29] p<0.001) among UMs.

Conclusion. Among the UMs, SDoH were often associated with the most prevalent chronic medical conditions. UMs had a greater risk of depression and poorer self-perceived health.

Keywords (MeSH terms): emigrants and immigrants; transients and migrants; undocumented migrants; ; social determinants of health; health status

Introduction

The International Organization for Migration defines irregular migration as “a movement that takes place outside of the regulatory norms of the sending, transit and receiving country” (303). It is a changing process in which migrants move in or out of irregularity depending on laws and policies. Thus, in France, one in five documented migrants (DMs) have been undocumented at some point during their stay (30). In administrative terms, undocumented migrants (UMs) are individuals who do not have a residence permit in the host country. This population is difficult to estimate, especially in France, as no measurement to date is sufficiently robust. In few countries, such as the U.S., estimations are available (34). Different situations can lead migrants to be undocumented. While some people enter the country illegally, others enter with a residence permit and find themselves in an irregular situation later for various reasons. This could be because of a stay beyond the expiration date of their visa (“visa overstay”), a nonrenewal of residence permits (e.g., administrative delays, change of laws), or the rejection of asylum applications.

Some theories have been proposed to explain the health status of migrants and how it evolves during and after migration (77). The ‘healthy migrant effect’ hypothesis supposes that migrants are healthier than the population in their country of origin, as healthier people are more likely to migrate, and the opportunities in the host country are greater for healthy migrant workers (82,83). The literature shows that health benefits associated with the healthy migrant effect decline as the length of stay in host countries increases because of a "migrant exhausted effect" (304). This deterioration of physical and mental health is influenced by poor living conditions such as poor working conditions, poor housing, and food insecurity. The "migrant exhausted effect" is driven by several elements, including poverty, violences, negative acculturation, resettlement stress, and the interactions between genetic and environmental factors (305,306). This theory has been verified in DM populations, but to what extent can the ‘exhausted migrant effect’ apply to this particular population?

The UM population is heterogeneous, particularly in terms of living conditions. In France, the Premiers Pas study reported that slightly more than half of UMs living in France entered without visas (31). The latter seem to be more exposed to precarious situations than those who are documented. They are less often beneficiaries of health care insurance than those who enter a visa (31). UMs who used to have a visa may have been in France for a longer time, be more integrated and therefore have better access to a job and health care insurance; a longer length of residence is correlated with better access to health care insurance (307).

The health of UMs, particularly in France, is poorly understood and seems to differ from that of other migrants. The social determinants influencing the health of UMs are different from those of DMs. Unequal access to the labour market and more difficult living conditions contribute to differences in health status between these two populations (178–182). UMs have limited access to legal recognition and cannot work legally or be allocated social housing (183–185). They are often restricted to poorly paid jobs with long working hours that expose them to various occupational risks. The literature shows that poor working conditions are linked to adverse health outcomes among UMs (188,190,191). For example, physically demanding jobs have a negative effect on UMs' self-rated health (186). Housing instability, rental insecurity, and living in unsafe or disadvantaged neighbourhoods are associated with adverse health outcomes such as poorer mental health (depression, anxiety, or psychological distress) (192,193). UMs are at increased risk for some health conditions because of their irregular status and the effects of economic and social marginalization (194). In France, UMs exposed to poor living conditions such as food insecurity are at increased risk of chronic viral infection (200). Compared with the general population, UMs present worse health, mental health and self-perceived health status (194,201,202).

Furthermore, UMs do not have the same access to health care as DMs do. They are exposed to increased risks of unmet health care needs and delay access to care, including urgent care (201,202,308,309). Limited access to health care insurance partly explains those observations and is associated with adverse health outcomes (31,181,187,233,292,307,308). A recent study revealed that access to primary COVID-19 vaccination was positively correlated with having a residency permit and having health coverage (310). In France, the Aide Médicale d'Etat (State's Medical Assistance, AME) is a health insurance programme exclusively intended for UMs (311). The conditions for its eligibility include being a resident for more than three months, to be able

to prove one's identity and address and living with resources below a threshold (311). UMs must submit a request to gain access to the AME. Almost one out of two eligible UMs in France do not benefit from it and therefore have limited access to care (31,75,279,292,293,312). Even when UMs hold health care insurance, discrimination and refusal of care can present barriers (313–316).

The difference in administrative status between UMs and DMs has an impact on health for a variety of reasons. First, the absence of the right to remain and fear of being arrested is a source of psychosocial stress. In Switzerland, obtaining a residence permit has a positive effect on the mental health status of migrants (203–205). Isolation and social exclusion due to fear of deportation are also factors experienced by UMs that are likely to impact their physical and mental health (194,206). These factors lead to self-isolation and a reluctance to seek help when needed. The authors described the “chilling effect” as migrants' avoidance of health care for fear of being confronted by law enforcement agencies (176,207). These effects have been associated with poorer physical and mental health (208,209).

Among DMs, the healthy migrant effect describes a good health status at the beginning of migration, which declines as the length of stay increases (304–306,317). In contrast, compared with DMs, UMs, which have a shorter length of residence, have the poorest health status at the very early stages of the migration process, but literature describing its evolution with length of stay is scarce (181,186,187,194,203–205,318). Differences in health between UMs and DMs seem to be explained more by differences in SDoH than by differences in legal status (180,183,203,205). Thus, exhausted migrant theory does not seem to fully apply to UMs’ health and does not seem to encompass the complexity of factors that affect their health. We therefore sought to explore these questions in this paper.

We hypothesized that UMs have poorer health than documented migrants (DMs). To the best of our knowledge, no studies have directly compared health status between UMs and DMs in France based on population data.

The first objective of this work was to describe health status and identify the most frequently reported conditions and symptoms among UMs in France.

The secondary objective was to analyse how SDoH influence five major health outcomes: diabetes, high blood pressure (HBP), asthma, depression and self-perceived health. These five outcomes were chosen because (1) the literature reports high prevalence rates among migrants and UMs and (2) SDoH have a significant effect on these outcomes (181,187,194,203,204,280,319).

The third objective was to compare UMs with DMs in terms of those five outcomes.

To meet these objectives, we drew on 2 studies: the Premiers Pas Study (PPS), which was conducted among UMs, and the European Health Interview Survey (EHIS), which is representative of the French general population, and DMs with longer residences in France.

Methods

The methods describe the two databases used in our study and the analyses.

Premier Pas Study (PPS). ***Study design.*** Premiers Pas is a cross-sectional survey representative of UMs living in France. The study was carried out between February and April 2019. The inclusion criteria were status as an UM and an age greater than 18 years. Fourteen different languages were used to translate the questionnaire and interact with the participants. Individuals were randomly selected from 63 structures that provide support or assistance to deprived or migrant persons in the Parisian and Bordeaux regions (292). Individuals were recruited mainly through nonhealth care structures whose missions varied: social services for homeless people (for example, daytime shelters or shower baths), support for legal or administrative issues, and local health insurance centres or NGOs. The few health care structures were NGOs (for example, Doctors of the Word) or public structures. A total of 1223 participants were included in the PPS. Details of the methodology can be found in the articles published previously (31,292–294).

Data collection. A range of socioeconomic indicators were collected and categorized into coherent groups according to the following: demographic characteristics (age and gender), migration characteristics (region of origin, time since arrival in France, motives for migration, administrative status at arrival in France), social characteristics (having a job, job in the country of origin, fluency in French), the family environment (isolation), material living conditions (housing type, food insecurity) and access to care (AME).

The participants were asked if they were experiencing any of the following conditions: diabetes; high blood pressure (HBP); cancer; cardiovascular, respiratory, infectious, skin, joint and muscle, liver, neurologic, or gynaecologic diseases; mental health conditions; or other conditions. If the individual answered yes to one of the organ-related conditions, more specific questions were asked to specify the disease or the symptom. In different questions, participants were asked if they had a chronic disease/condition, whether they had dental pain, missing or broken teeth or infected teeth (cavities), if they had eyesight disorders and if they wore glasses. Independent of the answer to the main question, all the respondents were surveyed by the Patient Health Questionnaire-9 (PHQ-9) (296). A cut-off score of 10 or more was used to estimate moderate to severe depression (297). Pregnancy status in the last 12 months was recorded, and data were collected.

Self-perceived health was assessed by the Minimum European Health Module (MEHM) (298). Self-perceived health is a global measure that encompasses different dimensions of health, such as "physical, social and emotional function as well as biomedical signs and symptoms" (299). For the question "*How is your health in general?",* the MEHM has five possible answers: "*very good–good–fair–bad–very bad*". We built a binary variable as follows: "*very good–good–fair"* as good self-perceived health and *"bad–very bad*" as poor self-perceived health. In this paper, we used the category "poor self-perceived health" to describe perceived health to stay in line with the four other outcomes that represent a pathological status (298). To ensure representativity and to correct for nonresponse, the data were weighted based on the probability of inclusion.

European Health Interview Survey (EHIS). The EHIS is a health survey conducted every six years in the 28 countries of the European Union (295). It is a representative survey of the French population aged 15 years or older living in ordinary housing. The population was randomly drawn from individuals registered with the tax authorities (for income tax, council tax or both) and those declared as having ordinary dwellings (excluding people housed in shelters, collective housing or homeless people). Given the sampling, the presence of undocumented individuals can be considered marginal, and the two samples can be considered distinct. Thus, migrants from EHIS can be considered documented migrants (DMs). To identify migrant individuals, the place of birth and nationality at birth were used. Those born without French nationality in a foreign country were considered migrants. A total of 14 192 individuals were included in the EHIS, and 1478 were

migrants. For our study, we used 2019 data from migrants aged 18 years or older living in metropolitan France.

Data collection. The data included in our analyses from EHIS were age, gender, place of birth, length of residence in France and having a job. The outcomes we compared with the PPS were diabetes, high blood pressure, asthma, depression (using the PH9 score and a cut-off score of 10 or more to estimate moderate to severe depression) and self-perceived health (using the MEHM). To ensure representativity and to correct for nonresponse, the data were weighted based on the probability of inclusion.

Data analysis. In the first step, we described the prevalence of declared conditions and symptoms among UMs from the PPS using percentages. Major diseases by organ were subsequently compared by gender using a chi-square test. Finally, we performed univariate and multivariate analyses on the PPS data for diabetes, HBP, asthma, depression and poor self-perceived health as outcomes and socioeconomic indicators as independent variables. When an association was significant in the univariate analysis, we performed multivariate analyses. A difference was considered significant when the p value of the crude odds ratio (OR) for the univariate result was <0.200. To address collinearity and avoid overadjustment in the multivariate analyses, we used a hierarchical regression method. A blockwise selection process was performed, and the different categories of socioeconomic indicators were added step by step. In this six-step process, we added each group of variables sequentially, monitoring how the coefficients changed to ensure that the models remained robust. To avoid weighing down the models and reducing their performance, we added only the variables with a p value of the crude OR of less than 0.200 to the model. Alternatively, within a group of variables for which all the crude ORs were greater than or equal to 0.200, we selected the variable with the smallest p value.

For power purposes, the age categories "'40–59 years" and "60–82 years" were grouped together into the category "40–82 years" in some analyses when there were small numbers in one category.

In the second step, the results from the PPS (UM) were compared with those from the EHIS for diabetes, HBP, asthma, depression and poor self-perceived health. For this purpose, the two databases pertaining to the two samples (EHIS and PPS) were pooled. For each outcome, the two

populations were compared on the basis of age and gender, using percentages and chi-square tests. When differences were significant for age or gender, multivariate analyses were performed using logistic regression and adjusted for age, gender, region of origin and job status. Length of residence in France was not used to adjust the models because the distribution for this variable was too different for the two populations.

The threshold of significance was 0.05, and 95% confidence intervals were used. All analyses were performed with Stata© 15.1 software (StataCorp, College Station, TX, USA).

Results

First step: Description of UMs from the PPS. A total of 1188 individuals answered the main question related to an ongoing condition, and 1189 answered the question related to a chronic condition. The characteristics of the sample have been described in previous publications and are detailed in Table 1 (31). A total of 28.8% of the respondents were women, 36.2% were aged 18–29 years, 33.9% were aged 30–39 years, and 62.5% were from sub-Saharan Africa. Those who entered illegally represented 58.7% of the sample (31).

Health status: Description. Among the respondents, 68.1% reported having an ongoing health condition (n=1188), and 33.5% reported having a chronic condition (n=1189). The main ongoing health conditions reported were musculoskeletal (30.3%), mental (27.4%), digestive (12.0%), respiratory (10.3%), skin (7.8%), infectious (7.2%), neurologic (4.2%), and cardiovascular (4.0%) diseases. The other categories of health conditions, including cancers, represented less than 3% of the total sample. Figure 1 presents the distribution of declared ongoing health conditions by gender (those with a prevalence of less than 3% are not displayed). In total, 14.3% of the individuals reported suffering from pain. Among the women, 12.1% reported having a gynaecological disease or symptoms (n=418), 13.7% were pregnant at the time of the interview (n= 417), and 27.6% had a pregnancy in the last 12 months (n=345).

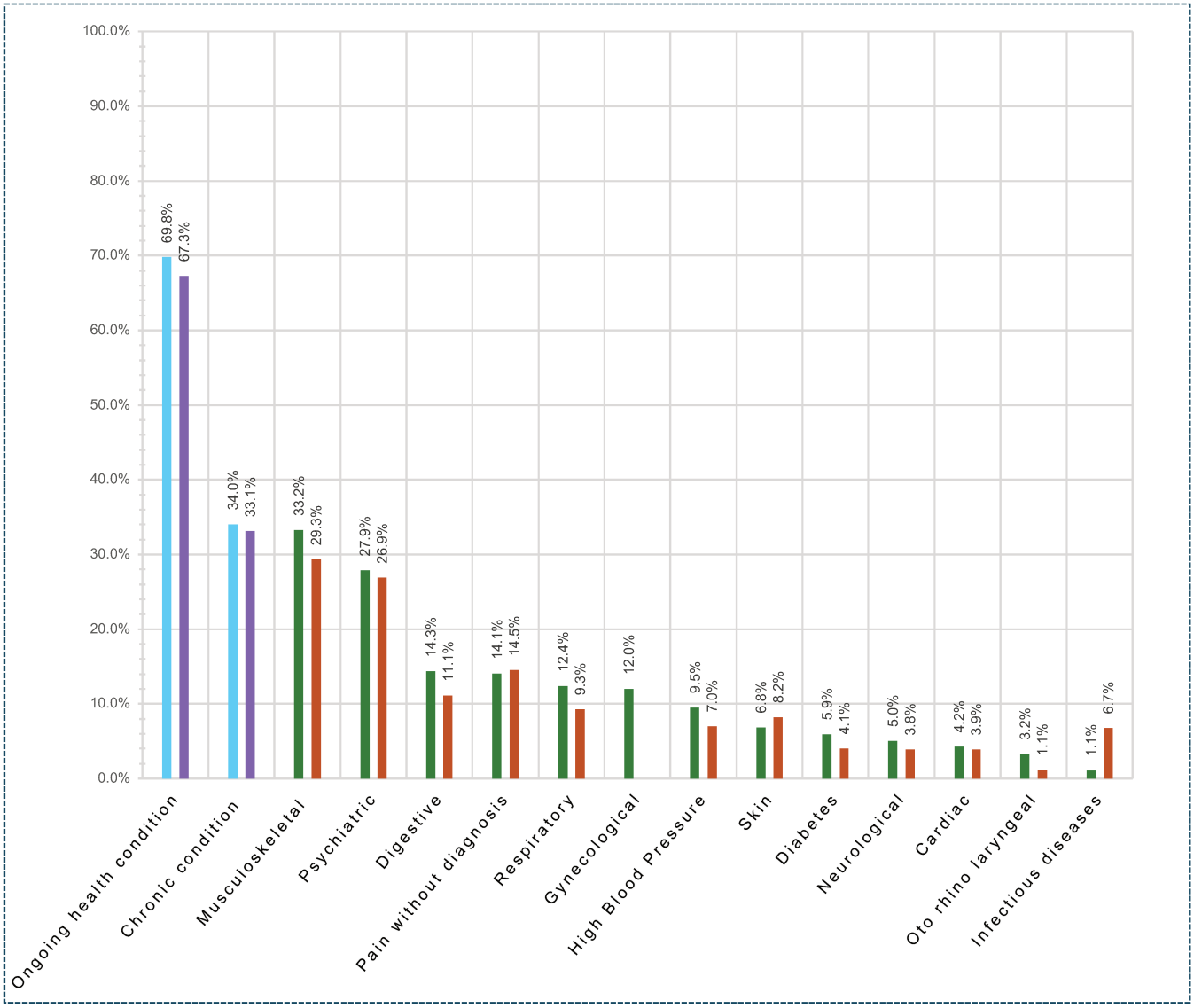

Figure 1: Weighted prevalence of ongoing health conditions in order of frequency and according to gender, Premiers Pas survey, 2019, n= 1189.

Women are represented in green or blue, and men are represented in orange or purple.

Figure 2 presents the most frequently reported diseases and symptoms, with a prevalence > 3%. Dental problems were at the top of the list of reported conditions in order of frequency, followed by mental diseases and cardiovascular diseases (HBP and diabetes).

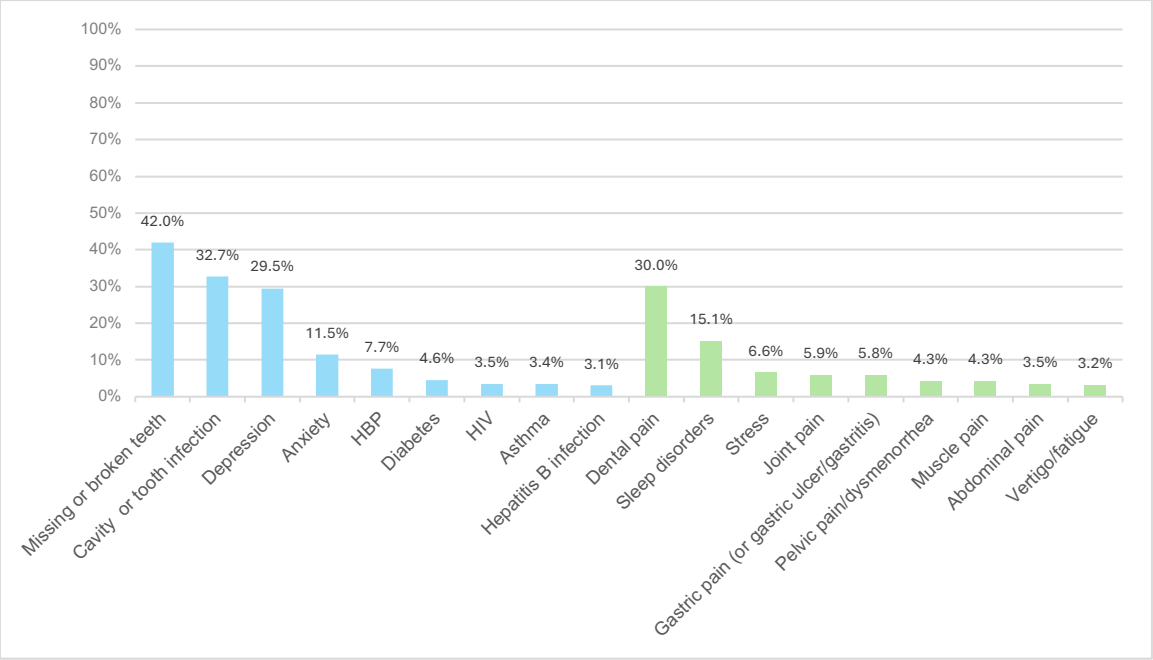

Figure 2: Weighted prevalence of conditions and symptoms by order of frequency, Premiers Pas survey, 2018, n= 1188.

Only prevalences higher than or equal to 3% are displayed.

On the left, blue represents the conditions, and on the right, green represents the symptoms.

HBP: high blood pressure. HIV: Human immunodeficiency virus

For perceived health (n=1219), 18.8% described it as very good, 34.2% as good, 22.2% as fair, 19.1% as bad and 5.7% as very bad. According to the binary variable, 24.8% of the participants reported poor self-perceived health.

Comparative analyses with SDoH among UMs. No significant difference was observed between men and women except for ophthalmologic disease (woman= 0.7% and man= 2.6%, p= 0.039) (Figure 1). The results from the multivariate analyses displayed in table 2 revealed various influences of SDoH on the outcomes. Worse living conditions were associated with poorer health: food insecurity was associated with a greater risk of depression ('often' adjusted odds ratio, aOR=2.66, 'sometimes' aOR=2.34), asthma ('often' aOR=3.55) and poor self-perceived health ('often' aOR=2.86). Living in collective or precarious housing was associated with a greater risk of poor self-perceived health (aOR=3.46 and aOR=2.34, respectively).

An occupation and a better social environment were associated with better health: having a job was associated with a lower risk of depression (aOR= 0.46) and HBP (aOR=0.18), whereas having children was also associated with a lower risk of depression ('alone with child' aOR=0.44, and 'in couple with child' aOR=0.50).

Migratory characteristics such as time spent in France and region of origin had a variable influence on health. Shorter residence in France was associated with a lower risk of asthma ('1 year to 3 years' aOR=0.10 and '3 years to 5 years aOR=0.08, reference category 'less than 3 months'). The category 'other' for the region of origin had a lower risk of diabetes (aOR= 0.19), lower risk of HBP (aOR=0.28) and a higher risk of asthma (aOR= 6.18) than did sub-Saharan Africa. For power purposes, this category included different groups of populations: the Americas (mostly Latin America), the European Union (E.U.) and Europe outside of the E.U. and Asia and Oceania. For diabetes, the weighted distributions were as follows: North Africa, 7.3% (33/356); sub-Saharan Africa, 4.3% (26/615); Americas and Oceania, 6.7% (5/75); E.U., 4.3% (2/47); Europe outside E.U., 0.0% (0/35); and Asia, 4.3% (2/47). For HBP, the weighted prevalence was: North-Africa, 12.9% (n=35/356), Sub-Saharan Africa, 6.5% (n=54/615), Americas and Oceania, 6.7% (n=5/75), E.U., 8.5% (n= 4/47), Europe outside E.U., 8.6% (n=3/35) and Asia, 8.5% (n=4/47). The prevalence rates of asthma were as follows: North Africa, 3.9% (22/356); sub-Saharan Africa, 2.5% (26/615); Americas and Oceania, 6.7% (5/75); E.U., 4.3% (2/47); Europe outside E.U., 5.7% (2/35); and Asia, 4.3% (2/47).

Finally, better fluency in French was associated with poorer health: a higher risk of diabetes ('not very well/poorly' aOR= 3.65) and a higher risk of depression ('very good/somewhat good' aOR=2.29).

Entering in France with a visa was a protective factor for depression (aOR= 0.57).

Sensitivity analyses were performed for univariate and multivariate analyses. The strength of the associations varied little, but their significance did not change when people recruited in health care structures were excluded from the analyses.

Comparison of UMs with DMs. Among the migrant population in EHIS, 52.6% were women, and 47.4% were men (Table 1). DMs in EHIS were older than UMs in PPS. For the region of origin, DMs

were more often from North Africa in EHIS (34.4%), Europe (E.U. 27.4% and Europe outside E.U. 9.1%) and less often from sub-Saharan Africa (15.8%) than were UMs (PPS). DMs had a longer length of residence in France, with 90.6% declaring living in France for more than 5 years, whereas it was only 22.2% among UMs in PPS.

Multivariate analyses comparing UMs from PPS and DMs from EHIS, adjusting for age, gender, region of origin and job status, revealed a significantly greater risk of depression (aOR= 2.35) and poor self-perceived health (aOR=2.49) among UMs. For asthma, the risk was lower for UMs (aOR=0.58). Figure 3 synthetizes the results from the multivariate analyses for the outcomes, and Table 4 shows comparisons by age stratified by gender between the Premiers Pas population (UM) and the EHIS migrant population (DM) according to age for diabetes, high blood pressure, asthma, depression and poor self-perceived health.

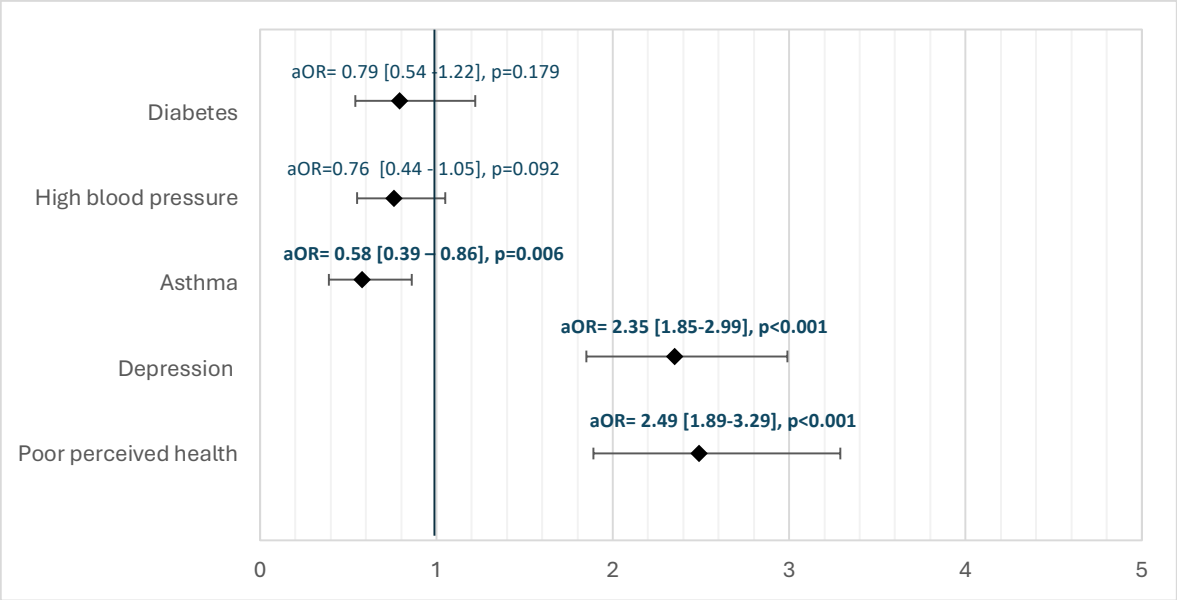

Figure 3: Adjusted odds ratios for the five outcomes diabetes, high blood pressure, asthma, depression and poor self-perceived health adjusted for age, gender, region of origin and having a job. Comparison between undocumented migrants from Premiers Pas study and documented migrants from EHIS. The reference category is the documented migrants from the EHIS.

aOR: adjusted odds ratio

The figures in square brackets are 95% confidence intervals.

Discussion

Main results. Like in the literature among UMs, musculoskeletal, mental and digestive conditions were the most represented categories, and dental problems were at the top of the list of reported conditions or symptoms (233,280,320). Pain was often reported by participants (319).

Our results showed that SDoH play a significant role in the health of UMs with respect to diabetes, HBP, asthma, depression and self-perceived health. While poor living conditions such as food insecurity and insecure housing were associated with a greater risk of negative outcomes (poor self-perceived health, depression and asthma), having a social network and an occupation were protective factors for negative outcomes (depression and poor self-perceived health). The influence of SDoH is in line with studies carried out among UMs (181,187,194,233,308). In our study, access to health care was not associated with any of the outcomes.

Our second hypothesis was also verified. Compared with the DMs, the UMs had worse mental health and poorer self-perceived health. The risk of asthma was significantly lower for UMs, and it increased with increasing time spent in France. This finding was not verified for diabetes or HBP.

How can the differences observed between UMs and DMs be interpreted? First, these differences may be related to legal status, particularly with respect to mental health and perceived health status (183,205). A lack of legal status can be a source of fear among authorities and deportation, as well as self-isolation and chilling effects, contributing to a degraded mental health status (203,204,208). As described in the literature, these differences can also be explained by the worsening living conditions for UMs (186,192,193). These often stem from a lack of legal status: no access to social housing in particular and limited access to the labour market, leading to low incomes and food insecurity. In addition to age, gender, job status and region of origin, the influence of SDoH related to living conditions could not be characterized in our study because the multivariate models comparing UMs and DMs were not adjusted for these variables. The main reason was that they were not included in the EHIS study. We hypothesize that the differences observed in terms of mental health and perceived health status between UMs and DMs are attributable to the massive influence of living conditions, including social support, already described in the literature (203–206).

Like living conditions, it was not possible to include the variable related to length of residence in the multivariate models because its distribution was too different between the two populations. Thus, the health differentials observed could at least partly reflect the differences in the length of residence associated with integration.

The risk of asthma was lower among UMs than among DMs. As UMs had a shorter length of residence in France, this factor could explain, at least partially, the decreased risk among UMs. According to some authors, living conditions and the environment play a role in the development of allergic asthma in the context of migration (321). The increased risk of asthma with time in France could be linked to an allergy "catch-up", with the immune system being reprogrammed in response to a new environment when exposure is long enough (322).

The trend towards a lower risk for diabetes and HBP (differences not significant) could also be explained by a shorter length of residence. The literature shows that time spent in the host country and living environment play a role in the increased risk of diabetes and HBP among the migrant population (238,323,324). The causal pathways are multifactorial and include socioeconomic circumstances (income, availability of healthy food, etc.), behavioural factors (e.g., physical activity, dietary changes), access to health care (particularly preventive care), and physical and psychosocial stress (social cohesion, neighbourhood safety, discrimination) (325,326).

Less acculturation, which is linked to a shorter length of stay, is a behavioural factor. The concept of acculturation describes the cultural changes resulting from continuous contact between groups with different cultures (36). Although the definition varies, acculturation can be defined as "the process by which individuals adapt to a new living environment and potentially adopt the norms, values, and practices of their new host society" (37–47). It is a complex and dynamic process that can be affected by many factors, such as societal structures and policies (48).

Mental health and poor self-perceived health. More than a quarter of the participants reported a mental health condition. Although this was self-declared, the prevalences of sleep disorders and anxiety, conditions that do not require a fine diagnosis, were very high. Mental health among UMs and the relationship between pain and mental health have been explored in other studies (319,327). The prevalence of depression was high and affected almost one-third of the UMs. Biases in the estimation of moderate to severe depression and in the comparison between the UM and DM populations seem low because the PHQ-9 was used both in the PPS and EHIS; thus,

the questions were asked in the same way. In the PPS, the PHQ-9 was used in different languages, and interviews were conducted in French (75%), Arabic (8%), English (7%), Spanish (4%), Russian (2%), and Portuguese (2%), accounting for 99% of the questionnaires collected (70). The PHQ-9 has been validated in all these languages (328–332).

Like mental health, poor self-perceived health was reported by a quarter of the participants. Self-perceived health captures physical functioning and, to a lesser extent, mental health and social functioning (333). It is a holistic measure of health status that reflects several dimensions of health (physical, social, and emotional functions and biomedical signs and symptoms) and is associated with mortality (299,334,335). However, this indicator can be biased by nonhealth factors related to the respondent and the interview situation, such as gender, age, trust in others, formal education or marital status, as well as factors related to the interviewer, such as their experience as an interviewer, their own self-perceived health or the age difference between the respondent and the interviewer (336). Moreover, social position can influence self-perceived health, as less educated people underreport poor self-perceived health (337). In our study, UMs living in poor housing conditions and experiencing food insecurity were at greater risk of having poor self-perceived health. The literature also shows that poor self-perceived health is associated with precarious living conditions, a lack of social support, poor working conditions and poor socioeconomic status, such as income level, among UMs (179–181,183). Self-perceived health is associated with access to health care among migrants. In Canada, migrants without health insurance and with a high prevalence of unmet health care are more likely to perceive their health as poor (338). Our study did not highlight differences in the prevalence of poor self-perceived health between AME beneficiaries and nonbeneficiaries. Another study based on a representative population of migrants in France showed that among migrants with health insurance, those who had poor self-perceived health were more likely than those who had good self-perceived health to have consulted a general practitioner, to have received a vaccination in the last twelve months, and to have been screened for hepatitis C (339). However, they were less likely to have been vaccinated against hepatitis B than those who perceived themselves to be in good health. Our results revealed that depression and poor self-perceived health were greater among UMs than among DMs when adjusted for age, gender, region of origin and job status. These results are in line with studies showing better self-perceived health and better mental health for migrants after

they obtain legal status (203–205). A representative study of UMs in French Guiana also revealed that they had poorer self-perceived health than did DMs and native-born individuals (340).

Chronic conditions. For each age category, the prevalence rates of diabetes, HBP and asthma were comparable between UMs and DMs, except for the prevalence of asthma among the younger age group, which was higher among DMs.

Studies conducted among UMs suggest nonnegligible prevalences of chronic conditions, although these vary according to the populations studied, including age, place of recruitment and country of origin (233,280,340–343). Among individuals who received from doctors at the world's consultation centres in 2019 in France (whose profile was similar to that of our sample: migrant people, mainly from North Africa and sub-Saharan Africa, and a young population, mainly males), more than half were diagnosed with a chronic condition (279). Another study conducted among UMs in 11 European countries also reported a high prevalence of chronic conditions (233). The authors reported that only a low proportion of individuals with chronic conditions were receiving care and that the chances increased with health insurance coverage. Undocumentation was highlighted as a risk factor for delayed access to care, a regular supply of medication for patients with chronic conditions and, in cases of acute health conditions, a risk factor for difficulties accessing immediate medical care (181,187,234,235). In a study carried out in outpatient departments in France, almost half of the patients were undocumented, half suffered from a chronic condition, and those with a deprivation factor (lack of stable housing, health coverage, lack of administrative residence permit) were also often carriers of a chronic condition (341).

The incidence, prevalence and mortality of diabetes seem to be greater among some groups of migrants than among the native-born population in Europe, especially migrants from North Africa (344–346). Among individuals living in Algeria, Tunisia or Morocco, diabetes seems more common than it does in the French population but is nevertheless very common (347–349). Studies have also shown that length of residence in the host country can play a role in the risk of developing diabetes (323,350–352). In our study, no difference was found according to the time of residence, probably because of a lack of power. Globally, for cardiovascular risk factors, studies have suggested that the healthy migrant effect, which is that arriving migrants have a better health status than native-born migrants do, diminishes with the time spent in the host country (237–240). In addition to the number of years spent in France, the environment after migration seems

to be a risk factor for diabetes. In a study carried out among individuals living in Cameroon, migrants from Cameroon living in France and Caucasians living in France suggested that those who emigrated to France developed diabetes earlier than those who did not emigrate or that the diagnosis was made later among those who did not emigrate (353). A higher body mass index and body fat distribution are risk factors for diabetes (354–357). In our sample, obesity and overweight were more prevalent among women and individuals from North Africa but were not associated with diabetes in multivariate analyses (and were thus not included in the final models).

Surprisingly, a better fluency in French was associated with a greater risk of diabetes. Fluency in the language of the host country is correlated with health literacy (358). Low health literacy is linked to less frequent searches for health information, a reduced ability to understand that information, and a lower capacity to apply health-related instructions (359). Therefore, migrants with good health literacy and knowledge of the health care system in the host country are more likely to know about diabetes and therefore be screened and diagnosed for it.

Conditions and comparison literature. Skin conditions are prevalent and, from the literature, seem to be more common among UMs than among DMs (181,233). Skin disease can be a communicable disease or noncommunicable disease, including stress, anxiety (psoriasis) and environmentally mediated diseases (278). Some skin diseases or symptoms are more common among migrants living in precarious conditions (such as scabies or pediculosis) (360). Dental health was at the forefront of declared conditions, with dental pain being the most reported symptom. Dental problems seem to be a frequent issue among migrants, especially UMs (234,279–283). Few studies have examined oral health among UMs, but overall, it seems to be worse among migrants than among the host population (361,362). Social support plays a positive role in the dental health of migrants (363).

Communicable diseases. Prevalence rates of HIV, hepatitis B and hepatitis C infections were nonnegligible. They are detailed in another paper based on the same sample (220). The literature suggests that the prevalence rates are greater among migrants than among the host population in France (364,365). A high proportion of UMs infected with HIV are from sub-Saharan Africa (187,366,367). In France, a high proportion of individuals infected with HIV do not know their status (366). Thus, we suggest that our results underestimate the true prevalence of HIV

infections among UMs. Nevertheless, a study carried out in a primary care setting revealed that the desire to have an HIV test is high among UMs from sub-Saharan Africa and the Americas (233).

Prenatal care. Two out of five UMs reported current or recent pregnancies. The literature underlines higher risks of adverse maternal outcomes for UM women in connection with nonoptimal prenatal care (318,368). Therefore, our results should raise concerns about prenatal and gynaecologic care for UMs in France.

Strengths. A major strength of this study is the recruitment of a diverse and randomly selected population. To our knowledge, this is the first study in France to examine UMs who were not exclusively recruited from health care settings. By focusing on this hard-to-reach and underresearched group, the study contributes important insights. The recruitment was facilitated by the use of multiple languages and the inclusion of various sites beyond health care environments. While the sample size was relatively small, the findings remain significant given the difficulty of accessing this population, particularly outside health care settings. Another strength is the comparison with a representative sample of the DMs in France. Even though comparable variables between the two studies were limited, the use of the PHQ-9 and the self-perceived health question for each study was a key strength.

Limitations. A major limitation of this study is the lack of statistical power for some analyses, especially when exploring the impact of SDoH on diabetes and asthma. Additionally, although the sample was randomly selected, the study did not fully represent the UMs across France, as recruitment was limited to two regions. However, the results are likely to be closely representative, as UMs are predominantly located in urban areas, especially in the Paris region (369). Another limitation was that the results were declarative, which can have led to declarative biases, especially for people without regular medical check-ups and possibly for people not covered by AME (293,307). Therefore, some results could have been underestimated (especially for some chronic conditions such as diabetes and hypertension, viral infections, etc.) because the symptoms are not experienced until late in the course of the disease, and the diagnosis is generally made with the help of a clinical examination and additional investigations. Studies conducted among the French general population suggest that diabetes and HBP are

underdiagnosed (370,371). The difficulties associated with access to care, including prevention and screening, and health insurance coverage can contribute to this underestimation. Finally, the variable related to the length of residence in France was not included in the models comparing UMs and DMs because its distribution was too different between the two populations. When 8 out of 10 UMs were in France for less than 5 years, this was the case for only one out of ten DMs. Therefore, the effects observed between UMs and DMs cannot be dissociated from the effects of the length of residence. In addition, there are likely effects related to other variables that we did not collect and that could act as confounders. Although this is a limitation of our work, the differences observed between the two groups in terms of mental health and self-perceived health reflect reality and are relevant from a public health perspective.

In conclusion, to our knowledge, this study is the first to focus on the health of UMs in France not exclusively recruited in health care settings. The results revealed a significant influence of SDoH on various outcomes and a high prevalence of health conditions, chronic conditions and symptoms requiring access to care. Higher risks of depression and poor perceived health were observed among UMs than among DMs. The limited access to health coverage of this population is therefore of concern.

List of abbreviations

AME: Aide Médicale de l'Etat

DMs: Documented migrants

EHIS: European Health Interview Survey

E.U.: European Union

HBP: High blood pressure

PASS: Permanence d'Accès aux Soins de Santé

PPS: Premiers Pas Study

SDoH: Social determinants of health

UMs: Undocumented migrants

Declarations

Ethics approval and consent to participate. The Premiers Pas Study involving human participants was reviewed and approved by the Institute for Research and Documentation in Health Economics. Informed consent for participation was obtained from each participant in accordance with national legislation and institutional requirements. The study was conducted under the control of the CNIL (Commission nationale de l'informatique et des libertés, registration number: 2203002 v 0). Participation in the survey was free and anonymous. It was conducted under the supervision of the CNIL, which guarantees respect for anonymity, privacy and the protection of personal data. The European Health Interview Survey is a mandatory survey (binding on questionnaire form and content) for EU member countries (European Commission Regulations n°141/2013 of February 19, 2013 and n°2018/255 of February 19, 2018), steered by Eurostat. The EHIS legal framework is governed by Regulation (EC) No. 1338/2008 of the European Parliament and the Council, dated 16 December 2008, which pertains to Community statistics on public health and health and safety at work.

Consent for publication. Not applicable

Availability of data and materials. All the data generated or analysed during this study are included in this published article.

Competing interests. The authors declare that they have no competing interests.

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Authors' contributions

S.M., P.D. and J.W. made substantial contributions to the conception or design of the work, analysis and interpretation of data. S.M., P.D., J.W., N.V., A.M. and F.J. drafted the work or revised it critically for important intellectual content. S.M., P.D., J.W., N.V., A.M. and F.J. approved the version to be published.

S.M., P.D., J.W., N.V., A.M. and F.J. agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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References: See at the end of the thesis

Table and figure captions:

Figure 1: Weighted prevalence of ongoing health conditions in order of frequency and according to gender, Premiers Pas survey, 2019, n= 1189. Women are represented in green or blue, and men are represented in orange or purple.

Figure 2: Weighted prevalence of conditions and symptoms by order of frequency, Premiers Pas survey, 2018, n= 1188. Only prevalences higher than or equal to 3% are displayed.

On the left, blue represents the conditions, and on the right, green represents the symptoms.

HBP: high blood pressure. HIV: Human immunodeficiency virus

Figure 3: Adjusted odds ratios for the five outcomes diabetes, high blood pressure, asthma, depression and poor self-perceived health adjusted for age, gender, region of origin and having a job. Comparison between undocumented migrants from Premiers Pas study and documented migrants from EHIS. The reference category is the documented migrants from the EHIS.

aOR: adjusted odds ratio. The figures in square brackets are 95% confidence intervals.

Table 1: Descriptions of the characteristics of the Premier Pas survey and EHIS populations, 2019

Table 2: Univariate and multivariate analyses for diabetes, high blood pressure, asthma, depression and poor self-perceived health, Premiers Pas Study, 2019

Table 3: Comparisons between the Premiers Pas population (undocumented migrants) and the EHIS migrant population (documented migrants) according to gender, age and region of origin for diabetes, high blood pressure, asthma, depression and poor self-perceived health, 2019.

Table 4: Comparisons by age stratified by gender between the Premiers Pas population (undocumented migrants) and the EHIS migrant population (documented migrants) according to age for diabetes, high blood pressure, asthma, depression and poor self-perceived health, 2019.

Table 1: Characteristics description for Premier Pas survey and EHIS populations, 2019

	Premiers Pas survey		EHIS		p-value
	n	% (weighed)	n	% (weighed)	
Total	1223		**1478**		
Demographic characteristics					
Gender	**1220**		**1478**		**<0.001**
Woman	426	28.8	783	52.6	
Man	794	71.2	695	47.4	
Age class	**1216**		**1478**		**<0.001**
18-29	333	36.2	146	10.3	
30-39	443	33.9	269	19.3	
40-59	384	27.6	624	40.8	
60 and more	56	2.3	439	29.6	
Migration characteristics					
Region of origin	**1209**		**1477**		
North-Africa	363	23.7	522	34.4	**<0.001**
Sub-Saharan Africa	630	62.5	241	15.8	
Asia	50	3.4	158	10.3	
Europe European-Union	47	1.8	367	27.4	
Europe outside European-Union	39	2.3	143	9.1	
Americas and Oceania	80	6.3	46	3.0	
Arrival in France	**1215**		**1471**		
Less than 3 months	132	15.3	1	0.1	**<0.001**
[3 months -1 year[	324	22.5	5	0.3	
[1 year -3 years]	314	28.3	43	3.1	
[3 years -5 years[	147	11.7	71	5.9	
More than 5 years	298	22.2	1351	90.6	
Motive for migration	**1036**				
Health	121	8.4	/	/	/
Not health	915	91.6	/	/	/
Administrative status upon arrival in France	**1189**				
With visa	623	41.3	/	/	/
Without visa	566	58.7	/	/	/

Social characteristics					
Current job	**1212**		**1478**		**<0.001**
Yes	286	21.1	745	54.4	/
No	926	78.9	733	45.6	/
Job in the country of origin	**1214**				
Employee and self-employed	540	44.9	/	/	/
Manual worker	361	32.3	/	/	/
Students and other	107	8.1	/	/	/
Did not work/has never worked	206	14.7	/	/	/
Fluency in the French	**1222**				
Very good/somewhat good	643	56.4	/	/	/
Not very well/poorly or very badly	277	21.6	/	/	/
Non-French speaking	302	22.0	/	/	/
Family environment					
Isolation	**1191**				
Alone	475	41.5	/	/	/
Alone with child	226	18.5	/	/	/
In a couple without children	132	10.7	/	/	/
In a couple with child(ren)	358	29.3	/	/	/
Material living conditions					
Housing type	**1214**				
Ordinary	536	38.1	/	/	/
Collective	219	19.4	/	/	/
Precarious	459	42.5	/	/	/
Food insecurity	**1214**				
Often	321	30.7	/	/	/
Sometimes	448	36.6	/	/	/
Never	445	32.7	/	/	/
Access to care					
Aide Médicale d'Etat	**1218**				
Yes	526	43.8	/	/	/
No	692	56.2	/	/	/

/: not available in the data base; p-value (Chi2): p-value using chi-square test

Table 2: Univariate and multivariate analyses for diabetes, high blood pressure, asthma, depression and poor self-perceived health, Premiers Pas Study, 2019 (1/2)

	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)
Outcome	Diabetes (n=1188)				High blood pressure (n=1188)				Asthma (n=1188)			
All	4.57 (68)		n=1188	n=971	7.7 (105)		n=1188	n=1084	3.4 (59)		n=1188	n=1118
Demographic characteristics												
Gender	**1185**	0.434			**1185**	0.342			**1185**	0.971		
Woman	5.9 (33)		1.48	2.12 [0.51-8.83], p=0.300	9.5 (49)		1.40	0.59 [0.25-1.39], p=0.223	3.3 (25)		ref	ref
Man	4.1 (35)		ref	ref	7.0 (56)		ref	ref	3.3 (33)		1.02	2.19° [0.81-5.94, p=0.124
Age class	**1181**	**0.002**			**1181**	**<0.0001**			**1181**	0.912		
18-29	0.2 (5)		ref	ref	2.4 (7)		ref	ref	3.2 (13)		ref	ref
30-39	4.2 (16)		**18.92*** **	**7.48* [1.31-42.67], p=0.023**	6.2 (25)		2.68	2.37 [0.54-10.39], p=0.252	3.9 (17)		1.21	0.94 [0.22-3.94], p=0.929
40-59/40-82 (for asthma)	9.2 (31)		**43.00*** **	**42.03*** [7.66-230.51], p<0.001**	13.2 (52)		**6.15***	**5.63* [1.51-20.98], p=0.010**	3.2 (28)		0.99	0.75 [0.15-3.71], p=0.722
60-82	21.8 (16)		**11.89*** **	**97.04*** [11.20-841.12], p<0.001**	37.4 (20)		**20.1*** **	**21.97*** [4.28-112.65], p<0.001**				
Social characteristics												
Current job	**1178**	0.308			**1178**	**0.022**			**1178**	0.899		
Yes	2.8 (9)		0.53	/	3.7 (17)		**0.40***	**0.18** [0.06-0.51], p=0.001**	3.3 (11)		0.94	/
No	5.1 (59)		ref	ref	8.8 (86)		ref	ref	3.5 (47)		ref	ref
Job in the country of	**1179**	0.178			**1179**	**0.032**			**1179**	0.117		
Employee and self-	4.9 (36)		ref	ref	10.1 (54)		0.82	0.46° [0.18-1.13], p=0.089	4.8 (28)		0.98	1.27 [0.37-4.40], p=0.702
Manual worker	6.3 (18)		1.3	2.83° [0.70-11.53], p=0.146	3.1 (20)		**0.23***	**0.13** [0.03-0.55], p=0.005**	1.4 (10)		0.27°	0.41 [0.08-2.19], p=0.296
Students and other	0.6 (4)		**0.12** **	0.33 [0.06-1.81], p=0.202	5.6 (11)		0.44	**0.14** [0.03-0.59], p=0.008**	1.9 (6)		0.37°	**0.41 [0.07-2.43], p=0.328**
does not work/has never	1.9 (10)		0.37°	0.68 [0.15-3.10], p=0.621	12.0 (20)		ref	ref	4.9 (13)		ref	ref
Fluency in the French	**1187**	0.285			**1187**	0.562			**1187**	0.841		
Very good/somewhat	4.8 (34)		**2.67***	2.10 [0.51-8.56], p=0.301	8.6 (56)		1.66	/	3.3 (32)		ref	ref
Not very well/poorly or	6.5 (16)		**3.65***	**4.95* [1.08-22.63], p=0.039**	7.4 (25)		1.41	/	2.9 (14)		0.87	/
non-French speaking	1.9 (18)		ref	ref	5.4 (24)		ref	ref	4.3 (13)		1.31	/
Migration characteristics												
Region of origin	**1175**	0.113			**1175**	**0.042**			**1175**	0.116		
North-Africa	7.3 (33)		1.73	2.03 [0.50-8.19], p=0.302	12.9 (35)		**2.11°**	1.52 [0.64-3.59], p=0.339	3.9 (22)		1.61	2.00° [0.72-5.56], p=0.182
Sub-Saharian Africa	4.3 (26)		ref	ref	6.5 (54)		ref	ref	2.5 (26)		ref	ref
Other	0.9 (9)		**0.19** **	**0.19* [0.04-0.92], p=0.040**	3.9 (16)		0.58	**0.28* [0.08-0.95], p=0.041**	7.6 (11)		3.27°	**6.18** [1.58-24.16], p=0.009**
Arrival in France	**1182**	**0.035**			**1182**	0.110			**1182**	**0.018**		
Less than 3 months	2.2 (3)		ref	ref	3.4 (9)		ref	ref	2.8 (6)		0.37°	0.33 [0.05-2.16], p=0.249
[3 months -1 year[	9.9 (22)		4.87°	4.27° [0.88-20.72], p=0.072	6.9 (23)		2.07	1.53 [0.38-6.26], p=0.551	4.7 (22)		0.64	0.63 [0.22-1.80], p=0.384
[1 year -3 years]	1.7 (15)		0.76	0.88 [0.16-4.81], p=0.887	6.2 (26)		1.86	2.00 [0.49-8.15], p=0.332	1.0 (8)		**0.13** **	**0.10** [0.02-0.45], p=0.003**
[3 years -5 years[	2.7 (6)		1.25	1.04 [0.19-5.70], p=0.967	6.5 (9)		1.95	0.98 [0.20-4.77], p=0.981	0.9 (4)		**0.12** **	**0.08** [0.02-0.40], p=0.002**
More than 5 years	5.8 (22)		2.76	4.02° [0.84-19.41], p=0.083	14.4 (38)		**4.70***	4.62° [0.93-22.98], p=0.061	7.2 (19)		ref	ref
Motive for migration	**1016**	**<0.001**			**1016**	0.223			**1016**	0.509		
Health status	19.8 (14)		**7.89** **	**5.49** [1.60-18.89], p=0.007**	12.3 (20)		1.72	/	5.9 (8)		1.72	/
non-health	3.0 (45)		ref	ref	7.6 (75)		ref	ref	3.5 (46)		ref	ref
Administrative status upon arrival in France	**1155**	0.05			**1155**	**<0.001**			**1155**	0.227		
With visa	4.9 (48)	1.57	/	/	11.2 (74)		2.13°	1.36 [0.58-3.93], p=0.478	4.2 (34)		1.47	/
Without visa	3.9 (19)	ref	/	/	5.6 (29)		ref	ref	2.9 (23)		ref	/
Family environment												
Isolation	**1159**	**<0.001**			**1159**	0.159			**1159**	0.159		
Alone	1.5 (12)		ref	ref	5.4 (23)		ref	ref	5.4 (22)		ref	ref
Alone with child	7.5 (19)		5.29*	1.64 [0.20-13.45], p=0.646	12.4 (35)		2.45°	1.39 [0.48-4.06], p=0.547	12.4 (8)		**0.34***	0.66 [0.20-2.10], p=0.479
In a couple without	0/4 (3)		0.27°	0.54 [0.07-3.94], p=0,545	3.4 (5)		0.61	0.55 [0.07-4.69], p=0.588	3.4 (7)		4.06°	**10.58** [2.64-42.32], p=0.001**
In a couple with	8.7 (30)		**6.24** **	3.03 [0.53-17.46], p=0.214	9.6 (39)		1.85	1.52 [0.59-3.93], p=0.390	9.6 (19)		1.78	4.01* [1.33-12.06], p=0.014
Material living conditions												
Housing type	**1181**	0.549			**1181**	0.440			**1181**	0.966		
Ordinary	4.7 (32)		ref	ref	7.9 (51)		ref	ref	3.2 (23)		ref	ref
Collective	2.5 (10)		0.52	0.33° [0.11-1.33], p=0.129	10.7 (21)		1.39	/	3.7 (9)		1.17	/
Precarious	5.4 (26)		1.16	1.16 [0.40-3.35], p=0.779	6.1 (32)		0.75	/	3.6 (27)		1.14	/
Food insecurity	**1181**	0.959			**1181**	0.124			**1181**	0.756		
Often	5.1 (20)		1.16	/	7.7 (30)		ref	ref	3.6 (19)		ref	**3.55* [1.10-11.48], p=0.034**
Sometimes	4.4 (29)		1.00	/	4.7 (34)		0.59	0.42° [0.14-1.20], p=0.105	4.1 (26)		1.41	2.16 [0.63-7.41], p=0.222
Never	4.4 (19)		ref	ref	11 (40)		1.48	1.09 [0.41-2.88], p=0.861	2.6 (14)		1.62	ref
Access to care												
Aide Médicale d'Etat	**1184**	0.341			**1184**	0.700			**1184**	0.468		
Yes	3.5 (30)		0.63	0.37° [0.11-1.33], p=0.129	9.9 (53)		1.70°	1.19 [0.56-2.54], p=0.654	4.1 (22)		0.63	2.06° [0.74-5.72], p=0.165
No	5.5 (38)		ref	ref	6.0 (52)		ref	ref	2.0 (36)		ref	ref

p-value (Chi2): p-value using chi-square test

OR : crude odds-ratio, aOR : adjusted odds-ratio; a: crude odd ratio, b: adjusted odd ratio ; p-value : °p < 0.20 ; *p < 0.05 ; **p < 0.01 ; ***p < 0.001

95%CI: 95% Confidence interval; /: variable not included in the final model

ref: reference category

(a): Univariate analysis (b): Multivariate analysis: Models after adjusting for socioeconomic related variables : gender, age, employment, job in the country of origin, fluency in French,region of origin, time since arrival in France, motive of migration, isolation, housing type, food insecurity, healthcare insurance with the Aide Médicale de l'Etat. Results are presented as follows: aOR 95%CI, p-value

Table 2: Univariate and multivariate analyses for diabetes, high blood pressure, asthma, depression and poor self-perceived health, Premiers Pas Study, 2019 (2/2)

	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)
Outcome	Depression (n=1031)				Poor self-perceived health (n=1219)			
All	29.5 (384)		n=1031	n=951	24.8 (319)		n=1219	n=1104
Demographic characteristics								
Gender	**1030**	**<0.001**			**1216**	0.191		
Woman	32.9 (164)		1.27	1.72° [0.96-3.09], p=0.069	20.9 (111)		0.73	0.89 [0.50-1.60], p=0.704
Man	27.9 (219)		ref	ref	26.5 (208)		ref	ref
Age class	**1027**	0.479			**1213**	0.054		
18-29	30.6 (111)		ref.	ref	30.2 (82)		ref.	ref
30-39	26.6 (131)		0.82	1.36 [0.74-2.48], p=0.319	18.1 (93)		**0.51***	0.69 [0.34-1.40], p=0.3à6
40-59/40-82 (for asthma)	32.1 (126)		1.07	**2.02* [1.01-4.03], p=0.046**	25.3 118)		0.78	1.27 [0.61-2.63], p=0.520
60-82	26.1 (16)		0.80	1.19 [0.34-4.15], p=0.784	37.6 (25)		1.39	2.51° [0.69 - 9.1], p=0.160
Social characteristics								
Current job	**1022**	**<0.001**			**1208**	**0.021**		
Yes	16.7 (62)		**0.40*****	**0.46* [0.25-0.87], p=0.017**	15.2 (39)		**0.48***	0.89 [0.44-1.80], p=0.752
No	33.4 (320)		ref	ref	27.2 (274)		ref	ref
Job in the country of origin	**1022**	**0.023**			**1210**	0.298		
Employee and self-employed	32.9 (179)		ref	ref	26.8 (141)		ref	ref
Manual worker	21.7 (101)		**0.57***	0.57° [0.31-1.07], p=0.079	25.8 (103)		0.95	0.82 [0.44-1.53], p=0.531
Students and other	31.8 (27)		0.95	1.15 [0.50-2.68], p=0.742	11.9 (17)		**0.37***	0.51° [0.20-1.35], p=0.174
does not work/has never	35.7 (74)		1.13	1.35 [0.68-2.69], p=0.389	24.9 (56)		0.91	0.65 [0.30*-1.44], p=0.293
Fluency in the French	**1030**	**0.014**			**1218**	0.284		
Very good/somewhat good	33.4 (233)		**2.25****	**2.29* [1.08-4.85], p=0.030**	22.8 (142)		0.95	/
Not very well/poorly or very	27.9 (87)		1.73°	2.31° [0.96-5.55], p=0.062	31.4 (96)		1.47	/
non-French speaking	18.2 (64)		ref	ref	23.7 (81)		ref	ref
Migration characteristics								
Region of origin	**1023**	**<0.001**			**1205**	**0.028**		
North-Africa	34.3 (141)		1.18	1.43 [0.81-2.51], p=0.212	20.4 (85)		0.65	0.90 [0.47-1.72], p=0.747
Sub-Saharian Africa	30.7 (209)		ref	ref	28.1 (179)		ref	ref
Other	13.2 (30)		**0.34****	0.42° [0.14-1.23], p=0.113	14.6 (48)		**0.44****	0.77 [0.36-1.66], p=0.507
Arrival in France	**1027**	0.504			**1211**	0.051		
Less than 3 months	33.0 (50)		ref	ref	37.8 (49)		ref	ref
[3 months -1 year[	26.6 (106)		0.74	0.69 [0.30-1.57], p=0.374	23.7 (82)		0.57	0.74 [0.32-1.67], p=0.467
[1 year -3 years]	23.1 (94)		0.61°	0.66 [0.29-1.51], p= 0.322	17.9 (72)		**0.36****	0.46° [0.19-1.10], p=0.080
[3 years -5 years[	36.7 (43)		1.18	1.57 [0.58-4.25], p=0.376	29.5 (33)		0.69	1.03 [0.40-2.67], p=0.949
More than 5 years	33.4 (89)		1.02	1.27 [0.49-3.27], p=0.621	21.1 (81)		**0.44***	0.75 [0.28-1.99], p=0.564
Motive for migration	**889**	0.216			**1034**	0.419		
Health status	28.9 (284)		1.51	/	30.9 (57)		1.31	/
non-health	38.1 (45)		ref	ref	25.4 (217)		ref	ref
Administrative status upon	**1011**	**0.040**			**1187**	**0.006**		
With visa	24.3 (181)		**0.64***	**0.57* [0.33-0.99], p=0.047**	18.9 (143)		**0.57***	0.90 [0.50-1.62], p=0.723
Without visa	33.4 (195)		ref	ref	29.1 (170)		ref	ref
Family environment								
Isolation	**1006**	0.609			**1187**	0.917		
Alone	3.4 (144)		ref	ref	24 (110		ref	ref
Alone with child	26.6 (79)		0.69	**0.44* [0.22-0.89], p=0.022**	25.8 (73)		1.10	1.04 [0.48-2.24], p=0.923
In a couple without children	26.7 (41)		0.69	0.83 [0.35-2.00], p=0.684	27.4 (25)		1.19	1.89° [0.71-5.04], p=0.205
In a couple with child(ren)	24.8 (105)		0.63°	**0.50* [0.28-0.15], p=0.019**	22.4 (96)		0.91	1.03 [0.60-1.86], p=0.923
Material living conditions								
Housing type	**1026**	**0.001**			**1211**	**<0.001**		
Ordinary	27.7 (151)		ref.	/	12.0 (97)		ref.	ref
Collective	25.9 (66)		0.91	/	34.0 (72)		**3.78*****	**3.46*** [1.74-6.86], p<0.001**
Precarious	33.4 (167)		1.31	/	32.3 (149)		**3.51*****	**2.34** [1.28-4.28], p=0.006**
Food insecurity	**1026**	**<0.001**			**1210**	**<0.001**		
Often	38.3 (136)		**2.98*****	**2.66** [1.36-5.21], p=0.004**	36.2 (320)		**3.41*****	**2.86** [1.40-5.82], p=0.004**
Sometimes	33.8 (149)		**2.45****	**2.34** [1.27-4.32], p=0.006**	25.5 (119)		**2.05***	1.70° [0.87-3.31], p=0.117
Never	17.3 (97)		ref	ref	14.3 (74)		ref	ref
Access to care								
Aide Médicale d'Etat	**1029**	0.091			**1214**			
Yes	27.7 (153)		0.86	0.80 [0.46-1.40] p=0.443	19.7 (120)	**0.049**	**0.63***	0.74° [0.41-1.32], p=0.305
No	30.9 (230)		ref	ref	30.9 (196)		ref	ref

p-value (Chi2): p-value using chi-square test

OR : crude odds-ratio, aOR : adjusted odds-ratio; a: crude odd ratio, b: adjusted odd ratio ; p-value : °p < 0.20 ; *p < 0.05 ; **p < 0.01 ; ***p < 0.001

95%CI: 95% Confidence interval; /: variable not included in the final model

ref: reference category

(a): Univariate analysis (b): Multivariate analysis: Models after adjusting for socioeconomic related variables : gender, age, employment, job in the country of origin, fluency in French,region of origin, time since arrival in France, motive of migration, isolation, housing type, food insecurity, healthcare insurance with the Aide Médicale de l'Etat. Results are presented as follows: aOR 95%CI, p-value

Table 3: Comparisons between the Premiers Pas population (undocumented migrants) and the EHIS migrant population (documented migrants) according to gender, age and region of origineorigin for diabetes, high blood pressure, asthma, depression and poor self-perceived health, 2019.

	Diabetes					High blood pressure					Poor perceived health				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	% (weighed)	n	% (weighed)		n	% (weighed)	n	% (weighed)		n	% (weighed)	n	% (weighed)	
Total	68/1188	4.7%	192/1478	11.6%	<0.001	105/1188	7.7%	289/1478	19.0%	<0.001	319/1219	24.8%	191/1478	11.4%	<0.001
Gender															
Woman	33/418	5.9%	90/783	10.1%	0.050	49/418	0.5%	161/783	20.4%	<0.001	111/424	20.9%	98/783	11.5%	<0.001
Man	35/767	4.1%	102/695	13.1%	<0.001	56/767	7.0%	128/695	17.6%	<0.001	208/792	26.5%	93/695	11.2%	<0.001
Age class															
18-29	5/319	0.2%	3/146	1.9%	0.708	7/319	2.4%	3/146	1.6%	0.923	82/333	30.2%	4/146	1.7%	<0.001
30-39	16/432	4.2%	8/269	2.5%	0.605	25/432	6.2%	14/269	5.6%	0.743	93/442	18.1%	8/269	1.9%	<0.001
40-59	31/374	9.2%	74/624	10.4%	0.075	52/374	13.2%	112/624	16.5%	0.095	118/382	25.3%	81/624	10.7%	<0.001
60 and more	16/56	21.8%	107/439	22.4%	0.494	20/56	37.4%	160/439	37.4%	0.915	25/56	37.6%	98/439	21.8%	<0.001

	Asthma					Depression				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	% (weighed)	n	% (weighed)		n	% (weighed)	n	% (weighed)	
Total	59/1188	3.4%	132/1478	8.7%	<0.001	384/1031	29.5%	250/1478	16.0%	<0.001
Gender										
Woman	25/418	3.3%	85/783	9.7%	0.005	164/367	32.9%	154/783	19.8%	<0.001
Man	33/767	3.3%	47/695	7.5%	0.039	219/663	27.9%	96/695	11.8%	<0.001
Age class										
18-29	13/319	3.2%	14/146	8.3%	0.018	111/276	30.6%	25/146	19.7%	<0.001
30-39	17/432	3.9%	16/269	4.7%	0.221	131/379	26.6%	37/269	13.4%	<0.001
40-59	24/374	3.2%	61/624	9.5%	0.066	126/327	32.1%	117/624	16.1%	<0.001
60 and more	4/56	7.1%	41/439	10.2%	0.590	16/45	26.1%	71/439	16.1%	0.001

p-value (Chi2): p-value using chi-square test

p-value : °p < 0.20 ; *p < 0.05 ; **p < 0.01 ; ***p < 0.001

Table 4: Comparisons by age stratified by gender between the Premiers Pas population (undocumented migrants) and the EHIS migrant population (documented migrants) according to age for diabetes, high blood pressure, asthma, depression and poor self-perceived health, 2019.

	Diabetes									
	Women					Men				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	% (weighed)	n	% (weighed)		n	% (weighed)	n	% (weighed)	
Age class	**33**		**90**			**35**		**102**		
18-29	4/110	3.6%	3/83	3.5%	0.994	1/208	0.5%	0/63	0.0%	0.581
30-39	9/155	5.8%	5/162	2.7%	0.239	7/277	2.5%	3/107	2.3%	0.879
40-59	12/129	9.3%	35/321	9.5%	0.616	19/244	7.8%	39/303	11.3%	0.055
60 and more	8/22	36.4%	47/217	19.5%	0.118	8/34	23.5%	60/222	25.3%	0.667
	High blood pressure									
	Women					Men				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	% (weighed)	n	% (weighed)		n	% (weighed)	n	% (weighed)	
Age class	**48**		**161**			**56**		**128**		
18-29	1/110	0.9%	3/83	2.9%	0.192	6/208	2.9%	0/63	0.0%	0.173
30-39	12/155	7.7%	8/162	5.5%	0.305	13/277	4.7%	6/107	5.7%	0.711
40-59	26/129	20.2%	64/321	19.4%	0.958	26/244	10.7%	48/303	13.6%	0.078
60 and more	9/22	40.9%	86/217	40.4%	0.907	11/34	32.4%	74/222	34.5%	0.910
	Asthma									
	Women					Men				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	% (weighed)	n	% (weighed)		n	% (weighed)	n	% (weighed)	
Age class	**25**		**85**			**32**		**47**		
18-29	5/110	4.6%	9/83	7.0%	0.095	7/208	3.4%	5/63	9.9%	0.211
30-39	11/155	7.1%	14/162	6.0%	0.610	6/377	2.2%	2/107	2.6%	0.855
40-59	8/129	6.2%	35/321	9.8%	0.125	16/244	6.6%	26/303	9.1%	0.377
60 and more	1/22	4.6%	27/217	13.4%	0.272	3/34	8.8%	14/222	7.1%	0.583
	Depression									
	Women					Men				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	%	n	%		n	%	n	%	
Age class	**164**		**154**			**219**		**96**		
18-29	54/96	41.6%	18/83	27.3%	**<0.001**	77/179	36.8%	7/63	10.6%	**<0.001**
30-39	58/138	29.5%	29/162	17.5%	**<0.001**	91/241	29.3%	8/107	6.9%	**<0.001**
40-59	58/114	42.0%	68/321	20.4%	**<0.001**	89/213	37.5%	49/303	11.8%	**0.001**
60 and more	12/17	55.2%	39/217	17.8%	**<0.001**	8/28	13.9%	32/222	14.6%	0.253
	Poor perceived health									
	Women					Men				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	%	n	%		n	%	n	%	
Age class	**111**		**98**			**208**		**93**		
18-29	21/114	18.4%	3/83	2.5%	**0.002**	61/218	28.0%	1/63	0.8%	**<0.001**
30-39	31/159	19.5%	4/162	1.9%	**<0.001**	62/283	21.9%	4/107	1.9%	**<0.001**
40-59	45/127	35.4%	41/321	11.5%	**<0.001**	73/254	28.7%	40/303	9.9%	**0.001**
60 and more	14/22	63.6%	50/217	22.5%	**<0.001**	11/34	32.3%	48/222	21.1%	0.166

p-value (Chi2): p-value using chi-square test
p-value : °p < 0.20 ; *p < 0.05 ; **p < 0.01 ; ***p < 0.001

C. Conclusion

To our knowledge, this study is the first to focus on the health of UMs in France not exclusively recruited in health care settings. Results revealed a significant influence of SDoH on various outcomes and high prevalence of health conditions, chronic conditions and symptoms requiring access to care. Higher risk of depression and poor-perceived health were observed among UMs than DMs. The limited access to health coverage of this population is therefore of concern .

Chapter 2 : Access to preventive healthcare care and substance use

A. Introduction

Undocumented migrants (UMs) in France face significant barriers to healthcare, particularly preventive healthcare services, due to their legal status and social determinants of health (SDoH). This study first examined how SDoH influence access to preventive care and substance use among UMs, then compared tobacco consumption and cervical cancer screening rates between UMs and documented migrants (DMs).

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Understanding preventive healthcare services and substance use among undocumented migrants in France.

Title: **Understanding preventive healthcare services and substance use among undocumented migrants in France.**

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Abstract

Background: Undocumented migrants (UMs) in France face significant barriers to healthcare, particularly preventive services. This study first examined how SDoH influence use of preventive care and substance use among UMs, then compared tobacco consumption and cervical cancer screening (CCS) between UMs and documented migrants (DMs).

Methods: Data were drawn from the *Premiers Pas Study* (PPS), a representative sample of UMs in France. Preventive healthcare use since arrival, including general check-ups, screenings (tuberculosis, HIV, hepatitis B/C), vaccinations, and CCS, was assessed. Tobacco and unhealthy alcohol use using AUDIT-C score were measured. Comparisons between UMs and DMs were conducted using data from the *European Health Interview Survey* (EHIS), representative of the French population. Logistic regressions examined associations between outcomes and (i) SDoH among UMs and (ii) administrative status (UMs vs. DMs).

Results: One to third of UMs received preventive healthcare services since arrival. Healthcare insurance was associated with higher odds of receiving a check-up (aOR 2.23, 95% CI [1.24–3.99], p=0.007), while longer residence in France improved access to all preventive services. North African men had higher rates of smoking and unhealthy alcohol use. UMs were more likely to smoke than DMs (aOR 1.92, 95% CI [1.46–2.53], p<0.001), and DMs women were significantly more likely to be up to date for CCS (aOR 8.82, 95% CI [5.84–13.33], p<0.001).

Conclusion: Preventive healthcare access was improved with healthcare coverage and time in France. Higher tobacco use among UMs may reflect increased psychosocial stress linked to social vulnerability.

Key words (MeSH terms): emigrants and immigrants; transients and migrants; social determinants of health; early detection of cancer; communicable diseases; Tobacco Smoking; alcohol drinking

Introduction

Preventive healthcare plays a central role in addressing health disparities by reducing the burden of disease. Preventive health services can intervene either before the onset of disease (primary prevention) or during its early stages (secondary prevention) (372). Primary prevention focuses on reducing risk factors and promoting healthy behaviors to prevent the emergence of disease. This includes interventions such as tobacco cessation, immunization against infectious diseases, promoting healthy diets and physical activity, and minimizing harmful alcohol use. Secondary prevention aims to detect diseases at an early, more treatable stage and prevent their progression. Common strategies include population-based screening programs, such as those for cancer, infectious diseases, or hypertension.

Undocumented migrants (UMs) form a vulnerable group of the migrant population. UMs are individuals who do not have a residence permit in the host country, either because they entered without authorization, or because their permit is no longer valid (20–22). The limited access to legal recognition leads to both administrative and social disadvantages, preventing UMs from working or accessing social housing (192,193,373,374). Administrative status of migrant as well as poor living condition seems to have an impact on health status of UMs (186,203–205).

Health behaviors and access to preventive healthcare services for UMs is influenced by social determinants of health (SDoH) at different levels (194,210,215,308,375).

At healthcare system level, access to an insurance healthcare program or a lack of knowledge of the healthcare system are barriers to preventive healthcare (210,215,227,376,377). Healthcare system resources constraints such as funding cuts or lack of translation services also influence the accessibility of preventive healthcare services for UMs (215). In most European countries, they are denied access to comprehensive healthcare (60–62). The availability of publicly funded healthcare programs for UMs varies widely, with many countries offering limited access, even to basic or emergency care (60). As a result, UMs in Europe tend to use healthcare services less

frequently, and when they do seek care (often curative and less preventive), it can be inadequate or insufficient (67). In France UMs without legal status can apply for a healthcare insurance program (the State Medical Aid, AME) (63,69). However, only half UMs who are eligible do actually benefit from healthcare insurance (37). Although lower than several countries in Europe, the rate of UMs who give up on seeking healthcare in France in not negligeable (227).

At individual level, psychosocial factors such as fear of deportation can lead to avoidance of preventive healthcare service (215). Poor material and living conditions can influence negatively health (215,285). For example, lack of financial resources can contribute to food insecurity and lead UMs to choose foods that are high in calories and do not provide a healthy diet. Social isolation, poor housing or working condition, can induce psychosocial stress and lead to health-harmful behaviors such as tobacco use and unhealthy alcohol use (378–381).

All individual and health-system related determinants influencing UM's health are strongly influenced by sociopolitical context (170,215). Policies on access to work, housing or regularization of administrative status have the higher impact on health than individual or health system related factors (215). Literature suggest that compared to documented migrants (DMs), UMs have a lower access to preventive healthcare services. Vaccination against Covid-19 is negatively correlated with absence of legal status (286). Unadapted information on vaccine risks and benefits for UMs and the low confidence in authorities are barriers to vaccination among UMs (60). Access to cervical cancer screening (CCS) seems lower among UMs women compared to DMs (382–384). Lack of confidence and fear, influence care-seeking especially for women (maternal care, breast and cervical screening as well as pelvic exams and treatment decisions) (215,260–262). In France, to our knowledge, no studies comparing the access of UMs to DMs was found.

The purpose of this article is to explore preventive aspects of health of UMs in France through access to preventive healthcare services (screening and vaccination) and substance use that is a negative preventable health behavior.

Given the literature, our first hypotheses were that access to preventive healthcare services is influenced by SDoH and improved with healthcare coverage among UMs in France. We also hypothesized that access to CCS is worse for UM than DMs women in France.

Our second hypotheses were that tobacco and unhealthy alcohol use are influenced by living conditions among UMs. We also hypothesized that tobacco consumption was higher among UMs compared to DMs.

The main objective of this work was to describe (1) access to preventive care and (2) prevalences of tobacco and unhealthy alcohol use among UMs in France.

The secondary objective was to analyze the influence of the SDoH on (1) access to preventive care and (2) tobacco and unhealthy alcohol use among UMs in France.

Finally, we seek to compare UMs with DMs on tobacco use and access to cancer cervical screening outcomes.

To meet these objectives, we drew on 2 studies: Premiers Pas Study (PPS) conducted among UMs and EHIS Study representative of the French general population and DMs with longer residence in France.

Methods

The methods describe the two data bases used in our study and the analyses.

Premier Pas Study (PPS).

Study design. Premiers Pas is a cross-sectional study representative of UMs living in France. It was carried out between February and April 2019. Inclusion criteria were to be UMs and aged more than 18 years old. Fourteen different languages were used to translate the questionnaire and interact with participants. Individuals were randomly selected from 63 structures that provide support or assistance to deprived or migrant persons, in the Parisian and Bordeaux region (292). Individuals were mainly recruited

through non-health care structures which missions varied: social services for homeless people (for example daytime shelters or shower baths), support on legal or administrative issues, local health insurance centers or NGOs. The health-care structures were NGOs (for example Doctors of the Word) or publicly funded structures. A total of 1223 participants were included in PPS. Details of the methodology can be found in the articles published previously (31,292–294).

Data collection. A range of socioeconomic indicators were collected and categorized into coherent groups according to the following: demographic characteristics (age and gender), migration characteristics (region of origin, time since arrival in France, motives for migration, administrative status at arrival in France), social characteristics (having a job, job in the country of origin, fluency in French), family environment (isolation), material living conditions (housing type, food insecurity) and access to care ("Aide Médicale de l'Etat", AME").

Access to prevention was assessed through six variables. Participants were asked if since their arrival in France, they have benefited from a check-up, a chest x-ray (for tuberculosis screening), HIV screening, hepatitis B and C screening, vaccinations and for women a CCS (pap smear test). We chose to analyze those preventive healthcare services because they are recommended to be carried out by several medical societies, in the 4 months upon arrival (300). Tuberculosis screening concerns at-risk populations, which represent the majority of our sample (sub-Saharan Africa and North Africa in particular). If the answer to the question was yes, they were then asked when the preventive service was received: 'less than 1 year', '1 to 2 years' or '3 to 5 years. For CCS, the French recommendations in 2019 were to perform CCS every 3 years for women aged between 25 to 65 years old (301). In Premier Pas study, we categorized as ' not up to date' for CCS women who did not have CCS since arrival and those who had the screening for more than 3 years.

To assess substance use, participants were asked if they were smoking. Three answers were possible: 'yes, daily', 'yes, occasionally', 'no'. Alcohol consumption was assessed through the validated AUDITc score (302). Through 3 questions, the score identifies 3 consumption profiles: risk-free consumption, misuse and alcohol dependence. We

defined unhealthy alcohol use as misuse or alcohol dependence (385). Finally, cannabis use was assessed using the following question: “Have you used cannabis in the last 12 months?’ (‘yes’ or ‘no’). To ensure representativity and to correct for non-response, data was weighted on the basis of the probability of inclusion.

European Health Interview Survey.

Study design. EHIS is a health survey conducted every six years in the 28 countries of the European Union (295). It is a representative survey of the French population aged 15 years or older living in ordinary housing. The population was randomly drawn from individuals registered with the tax authorities (for income tax, council tax or both) and those declared as having an ordinary dwelling (excluding people housed in shelters, collective housing or homeless). Given the sampling, the presence of UMs can be considered marginal, and the two samples distinct. Thus, migrants from EHIS can be considered as documented migrants (DMs). In order to identify migrant individuals, place of birth and the nationality at birth were used. Those born without the French nationality in a foreign country were considered as migrants. A total of 14192 individual were included in EHIS and 1478 were migrants. For our study, we used the 2019 data from migrants aged 18 years or more living in metropolitan France.

Data collection. The data included in our analyses from EHIS were age, gender, place of birth, length of residence in France and having a job. The outcomes we used for the comparison with PPS was smoking and CCS . Women were asked when they last received CCS: ‘less than 1 year’, ‘1 to 2 years’, ‘2 to 3 years’, ‘3 to 5 years or ‘more than 5 years. To ensure representativity and to correct for non-response, data was weighted on the basis of the probability of inclusion.

Data analysis.

In a first step, we described (1) access to prevention through the six prevention related variables and (2) at-risk tobacco smoking, unhealthy alcohol use and cannabis use, among UMs from PPS, using percentages. At-risk tobacco smoking was defined as a daily tobacco smoking (those smoking occasionally were excluded from this category). Unhealthy

alcohol use was defined as an AUDIT-c score ≥ 3 among women and ≥ 4 among men (385,386). Dependence was defined a score ≥ 10 in either men or women.

Then we compared the outcomes with each SDoH using chi-square test. Finally, we performed univariate and multivariate analyses on the PPS for all those outcomes with socioeconomic indicators as independent variables. Because of lack of power, no multivariate analyses were performed for cannabis use. When an association was significant in the univariate analysis, we performed multivariate analyses. A difference was considered significant when the p value of the crude odds ratio (OR) for the univariate result was <0.200. To address collinearity and avoid overadjustment in the multivariate analyses, we used a hierarchical regression method. A blockwise selection process was performed, and the different categories of socioeconomic indicators were added step by step. In this six-step process, we added each group of variables sequentially, monitoring how the coefficients changed to ensure that the models remained robust. To avoid weighing down the models and reducing their performance, we added only the variables with a p value of the crude OR of less than 0.200 to the model. Alternatively, within a group of variables for which all the crude ORs were greater than or equal to 0.200, we selected the variable with the smallest p value.

In a second step, the variables tobacco and CCS were compared for UMs from PPS and DMs from EHIS. For this purpose, the two databases pertaining the two samples (EHIS and PPS) were pooled. For each outcome, the two populations were compared depending on age and gender, using percentages and chi-square test. When differences were significant for age or gender for tobacco consumption, multivariate analyses were performed using logistic regression and adjusting for age, gender, region of origin and job status. Length of residence in France was not included in the final models because the distribution for this variable was too different for the two populations.

The threshold of significance was 0.05 and 95% confidence intervals were used. All analyses have been performed with Stata© 15.1 software (StataCorp, College Station, TX, USA).

Results

Characteristic of UMs population from Premiers Pas survey (PPS). A total of 1223 individuals were included in PPS. The characteristics of the sample are detailed in table 1 (31). A total of 28.8% of the respondents were women, 36.2% were aged 18 to 29 years old, 33.9% 30-39, and 62.5% were from sub-Saharan Africa. Among the UMs sample, 58.7% entered illegally in France (31).

Access to prevention.

Description. Individuals who received a check-up since arrival in France were 59.5% (N=1212), those who received a chest X-ray were 47.8% (N=1205), those who were screened for HIV were 56.3% (N=1197) and for hepatitis 53.9% (N=1172). As for infectious disease prevention 36.2% answered that they had been vaccinated since arrival (N=1198). Among women, 51.4% (N=408) received a CCS since arrival and it was of 51.2% (N=357) among those who were eligible (between 25 and 64 years old). Among women eligible who had a CCS since arrival, 2.0% (N=11/172) were no longer up to date. Figure 1 displays the distributions of (1) UM who had and did not have access to the different preventive care, (2) among those who declared receiving the care, when they received it since arrival in France.

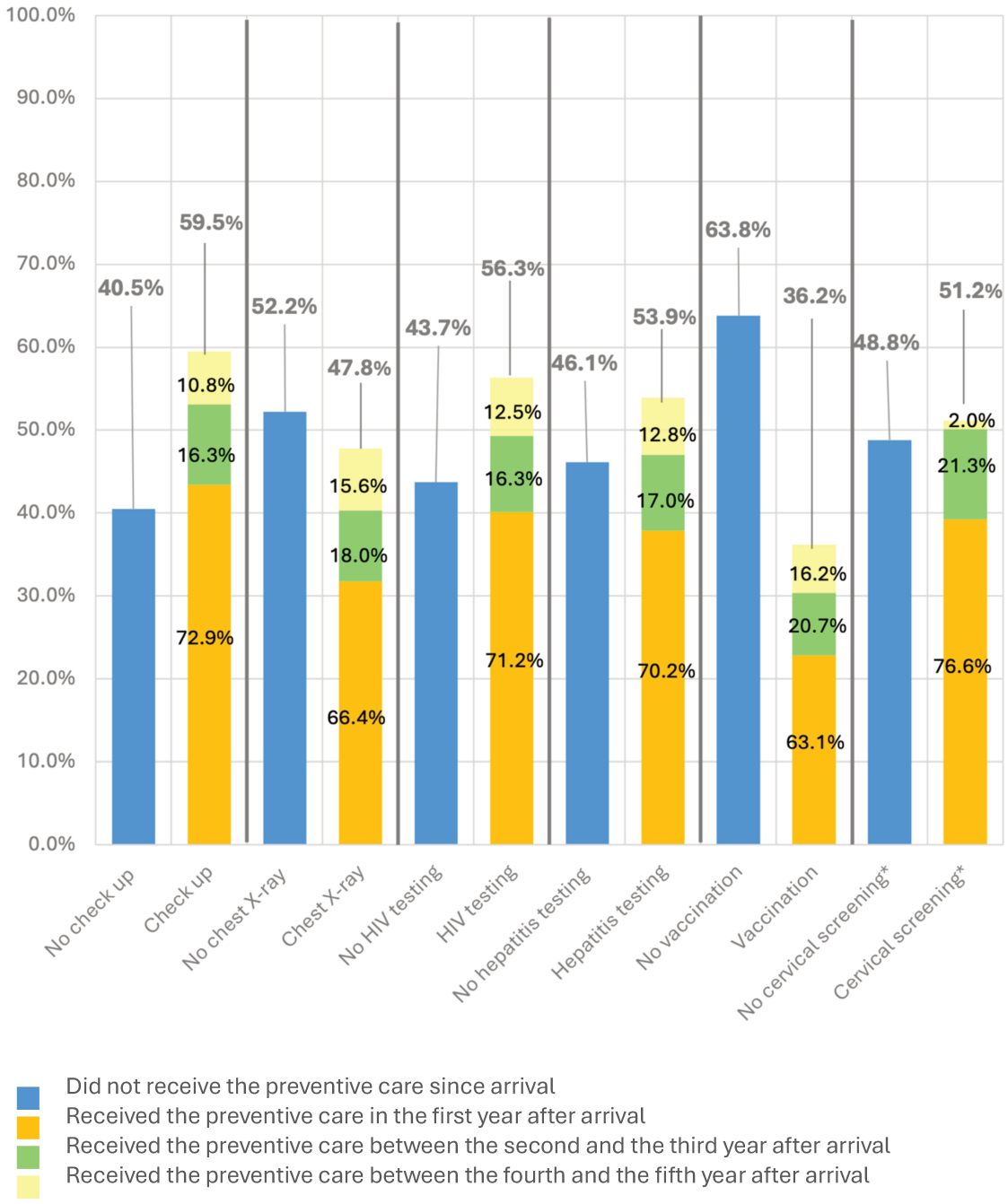

Figure 1: Access to preventive care among undocumented migrants. Premiers Pas study, 2019.
For each preventive care: the left bar in blue represents those who did not receive the preventive care since arrival. The right bar represents those who receive the preventive care. The right bar is composed of three colors representing when the preventive care was received since arrival: in the first year after arrival in France (orange), between the second and the third year after arrival (green), between the fourth and the fifth year after arrival (yellow).
Addition of the left and right bar proportions is 100%.
For better clarity, the addition of the proportions within the right bar is 100%. Sample size for proportions of the right bar are as follow: check up N= 673, chest X-ray N= 487, HIV testing N= 602, hepatitis screening N= 574, vaccination N=371, cervical cancer screening N= 172
*: only women aged 25 to 65 years old were included

Multivariate analyses adjusted for SDoH. Table 2 displays the associations found in multivariate analyses for the six prevention related variables and SDoH among UMs.

Women had more often received a check-up than men (adjusted odds radio aOR= 2.50, 95% confidence interval 95%CI [1.31 - 4.79], p=0.006).

Older age groups were associated to a better access to prevention: for check-up (30 to 39 years old aOR=2.09, 95%CI [1.03 - 4.25], p= 0.041, 40 to 82 years old aOR=2.99, 95%CI [1.45 - 6.18], p= 0.003, reference category 18-29 years old), HIV (aOR for 30-39 years old 2.87, 95% CI [1.46 - 5.66], p=0.002) and hepatitis screening (aOR for 30-39 years old 2.45, 95% CI [1.27 - 4.69], p=0.007).

UMs from sub-Saharan Africa had a better access to the six preventive services than UMs from north Africa (example for vaccination aOR= 2.24, 95% CI [1.15 - 4.37], p=0.018 and aOR= 6.13, 95%CI [1.90 - 19.73], p= 0.002 for CCS among women). UMs from sub-Saharan countries and those from countries included in the category 'other' had better rates of access to HIV screening compared to UMs from North-Africa (respectively a=3.14, 95%CI [1.62-6.10], p=0.001 and aOR= 2.42, 95%CI [1.14 - 5.13], p=0.022). The distribution for HIV screening by regions was as followed: North Africa 47.7% (n=134/357), sub-Saharan Africa 59.6% (n= 379/618), Latin America and north America 75.4% (n=54/80), European Union 15.5% (n=12/46), Europe outside European Union 67.3% (n=18/37) and Asia 36.3% (n=21/37).

For the six outcomes a longer length of residence in France was associated to a better access to prevention services (as example for check-up : [3 months -1 year[aOR= 2.85, 95%CI [1.07 - 7.59], p=0.036; [1 year -3 years] aOR= 7.76, 95%CI [2.79 - 21.56], p<0.001; [3 years -5 years[aOR=12.64, 95%CI [4.13 - 38.69], p<0.001 ; more than 5 years aOR=13.54, 95% CI [4.71 - 39.91], p<0.001, reference category being 'less than 3 months'). UMs for whom health was a motive for migration had a better access to check-up, tuberculosis screening and HIV and hepatitis screening. UMs who entered in France with a visa had lower rates of tuberculosis screening than those who entered without a visa (aOR=0.40, 95%CI [0.22-0.74], p=0.003).

Women with children (in a couple or not) and those in a couple without children had a better access to CCS than those alone without children. In a model not displayed in the table 2 we added the variable 'having been pregnant in the last 12 month'. Pregnancy was significatively associated to access to CCS since arrival in France (aOR=3.92, CI95% 1.44 - 10.68], p=0.008). In this model, the other adjusted odds ratios varied little and the degree of significatively did not change.

Individual with a precarious housing had better access to tuberculosis screening (aOR for collective housing: 2.05, 95%CI [1.01 - 4.14], p=0.046 and for precarious housing 1.83, 95%CI [1.00- 3.32], p=0.48). Those who entered with a visa had less access to tuberculosis screening. UMs with healthcare insurance coverage had more often benefited from a check-up since arrival (aOR 2.23, 95%CI [1.24 - 3.99], p=0.007).

Substance use.

Description. Among UMs, 20.8% (N=1223) had an at-risk tobacco consumption, 85.9% had a risk-free alcohol consumption (N=1223), 12.8% an alcohol misuse and 1.3% an alcohol dependence (which is 14.1% who has an unhealthy alcohol use). As for cannabis, 14.4% (N=1215) declared a consumption (n=1215): 4.7% once a month or less, 1.6% 2 to 4 times a month, 1.0% 2 to 3 times a week 2.2% 4 to 6 times a week and 4.9% every day.

Multivariate analyses adjusted fo SDoH. Table 3 displays the associations found in multivariate analyses for tobacco consumption and unhealthy alcohol use (misuse and dependence as defined by AUDIT-c score in the method section) with SDoH, among UMs. Men smoked more often and had an increased risk of unhealthy alcohol use than women (respectively aOR= 5.13, 95%CI [2.29 – 11.51], p<0.001 and 2.57, [1.29 - 5.15], p=0.007). UMs from north Africa smoked more often and had an increased risk of at-risk unhealthy alcohol use than those from sub-Saharan Africa (respectively aOR= 6.11, 95% CI [3.22-11.57] p<0.001 and 2.53 [1.10 - 5.82], p=0.011). We observed an increased risk of smoking and unhealthy alcohol use for the region category 'other'. The distribution of tobacco use by regions was as followed: North Africa 42.5% (n=118/363), sub-Saharan Africa 12.9%

(n= 78/630), Latin America and north America 21.2% (n=14/79), European Union 31.3% (n=23/47), Europe outside European Union 9.2% (n=6/38) and Asia 17.2% (n=11/50).
The distribution of unhealthy alcohol use by regions was as followed: North Africa 21.8% (n=55/363), sub-Saharan Africa 9.0% (n= 62/630), Latin America and north America 31.9% (n=25/80), European Union 14.7% (n=12/47), Europe outside European Union 16.5% (n=5/39) and Asia 9.8% (n=8/50).

Except for anxiety that was higher among UMs who had an unhealthy alcohol use (N=1188, 21.7% vs 13.4%, p=0.032), no differences were observed in terms of mental health for smoking or unhealthy alcohol use.

Comparison of UMs with DMs.

Among the migrant population in EHIS, 52.6% were women and 47.4% men (Table 1). DMs in EHIS were older than UMs in PPS. For the region of origin, DMs were more often from North Africa in EHIS (34.4%), from Europe (E.U. 27.4% and Europe outside E.U. 9.1%) and less often from sub-Saharan Africa (15.8%) than UMs (PPS). DMs had a longer length of residence in France with 90.6% declaring living in France for more than 5 years while it was only of 22.2% among UMs in PPS.

Among DMs from EHIS, 13.4% (n=198/1478) declared smoking tobacco daily. Multivariate analyses comparing UMs from PPS and DMs from EHIS, adjusting for age, gender, region of origin and job status showed a significant higher risk of tobacco consumption for UMs (aOR=1.92 95%CI [1.46-2.53], p<0.001, DMs from EHIS being the reference category).

Among DMs women in EHIS 83.1% (n=414/504) were up to date for CCS and among UMs, 50.1% (n=161/355) either did not have a CCS since arrival or are no longer up to date. Multivariate analyses comparing UMs women from PPS and DMs women from EHIS, adjusting for age, region of origin and job status showed a significant higher access to CCS for DMs (aOR=8.82 95%CI [5.84 -13.33], p <0.001). Table 4 shows comparisons of smoking and CCS between the two populations, according to age and region of origin and stratified by gender for smoking.

Discussion

Use of preventive healthcare services. Half to two third of UMs had access to check-up, as well as tuberculosis, HIV and hepatitis screening since arrival in France.

Guidelines developed in 2024 by several French scholarly organizations, suggested a framework for migrant check-up upon arrival (300). Check-up is recommended to be carried out or undertaken within 4 months of arrival in France (387). There are two reasons for this four-month period: (1) to differentiate it from the tourist visa issued for three months and (2) because this is the maximum recommended period for tuberculosis screening. The recommended check-up includes, but is not limited to, a consultation with a clinical examination, screening for infectious and tropical diseases (including tuberculosis, HIV, hepatitis), catch-up vaccination, screening for mental health disorders, screening for non-communicable diseases and screening for cancers including CCS. The eligibility criteria for UMs health insurance includes a 3-month time limit to apply and even when eligible only half of UMs benefit from the healthcare insurance (307). This combination of factors makes it difficult for UMs to complete the check-up within 4 months of arrival through the health insurance program (388). In our results the use of preventive healthcare services was for the majority of UMs in the first year after arrival.
Access to preventive healthcare services for UMs in France is partly provided by structures that operate in parallel to the healthcare insurance system. These include NGOs, free screening facilities for infectious diseases (HIV and hepatitis), free vaccination centers or tuberculosis centers providing free screening and care (389–391). In our study, UMs without healthcare insurance had less access to preventive healthcare. This differences only persisted for ‘check-up’ in multivariate analyses. This highlights the insufficiency of these structures and the crucial role of the AME to ensure access to preventive care for UMs (392). Access to preventive healthcare care is essential to reduce the risk of contracting a disease and complications at advanced stages of the disease, but also from an economic point of view, as the cost of exclusion from the healthcare system can be significant (393). Medico-economic models have shown that reducing access to

healthcare or withdrawing healthcare insurance for UMs can have an impact on healthcare system costs (394). Firstly, it can lead to a reduction in the use of screening and early treatment, as well as follow-up in primary care. This, in turn, would lead to a higher risk of complications not being managed in time, and would push patients to use urgent care, which is generally more costly. Ultimately, this would lead to higher costs for the healthcare system as a whole. In 2012, Spain's decision to remove healthcare access for UMs limited their ability to access primary care, likely resulting in an increased reliance on emergency services as their only available option (395).

Besides access to healthcare insurance, the use of preventive healthcare services seems to be driven by individual behavioral factors such as concerns for his own health. Our analyses showed that UMs for whom health was a motive for migration had higher use of healthcare services. Literature shows that among migrants with health insurance, those who have poor self-perceived health are more likely than those who have good self-perceived health to consult a general practitioner, to receive a vaccination, and to be screened for hepatitis C (339). In our sample, complementary analyses showed that UMs with poor perceived health had a slightly higher use of preventive healthcare (check-up, tuberculosis, HIV and hepatitis screening and vaccination). Individuals experiencing worse living conditions in terms of housing but also those who entered without visa had higher risk of tuberculosis screening. This is coherent because individuals living in poor conditions are more at risk to be contaminated by tuberculosis (387). .

One third of UMs reported that they have been vaccinated since arrival. Vaccination catch-up framework for newly arrived migrants in France has been detailed for healthcare professionals and is all the more important as vaccine-preventable diseases regularly re-emerge (396–399). UMs with children had a significant higher rate of vaccination (although the difference did not persist in multivariate analyses). Vaccination catch-up is required for children for the registration to school. Even when vaccinations are up to date at arrival, schools usually require a certificate from a doctor. Regional health agencies under the Ministry of Health coordinate and fund free vaccination centers where children in need of vaccination updates can be referred (400). Our results suggest that this

requirement for children has a positive impact on parents as it can influence their own vaccination catch-up.

Studies conducted among migrant showed unhealthy assimilation effects such as vaccine hesitancy (VH), increasing with time spent in the host country (145–147,401,402). Unhealthy assimilation effect describes the notion of convergence of migrant's health toward the native-born, the initial health status being better and is acculturation towards unhealthy behaviors (403). Our results showed that vaccination rates increased with length of residence in France which does not support an unhealthy assimilation effect. Two hypotheses are possible. The first could be that the length of residence in France is not long enough in our sample to observe this effect. The second could be that the unhealthy assimilation effect, is less pronounced in this population. We can assume that the insecure living conditions to which this population is exposed may isolate them and expose them to a lesser extent to the acculturation effect. The increased access to vaccination and to the other preventive healthcare services with length of stay observed in our study could then be explained by a better knowledge of the healthcare system and a better use of facilities offering preventive care to UMs with time. The positive effect of length of residence has already been described in the general migrant population for health check-ups, access to vaccinations and cancer screening (404).

UMs from sub-Saharan Africa had more frequently access to check up, tuberculosis, HIV and hepatitis screening, as well as vaccination and for women CCS than UMs from north-Africa. This cannot be explained by a better access to a healthcare coverage because the models were adjusted for the healthcare insurance. It does not seem to be explained by better access to healthcare facilities for migrants without health coverage such as NGOs either. In 2023, almost one third of the people seen by the Doctors of the World consultations were from sub-Saharan Africa, and one third from North Africa (309). One of the reasons for this better access may be that HIV screening could be a gateway to access to preventive care. The migrant population from sub-Saharan Africa is at higher risk of HIV infection and healthcare professionals are therefore usually more aware of the

need to screen for HIV infection in this sub-population (405,406). In addition, the community associations serving migrant from sub-Saharan Africa seem strongly committed to the fight against HIV/AIDS (407). In our study, people from Latin America were also more likely to have access to HIV testing. In the same way, this result may be explained by the presence in our sample of transgender UMs born in the Americas, at higher risk of being contaminated by HIV and recruited from associations receiving transgender people (406).

Overall women had a better access to preventive healthcare services than men. As CCS, HIV and hepatitis screening and vaccination are part of pregnant women care, one hypothesis could be that pregnancy is a gateway toward preventive healthcare services. We observed that women who had children and women who reported a pregnancy in the last 12 month had better chances to be up to date for CCS. Also, women without children but in a relationship had better access, suggesting a positive impact of social support in addition to pregnancy. However, only half of UMs women had access to CCS since arrival. Also, DMs women, most of whom have health insurance, had better chances to be up to date for CCS than UMs. At the time of the survey in France, CCS was recommended for women aged 25 to 65 every three years. Since 2018, CCS is organized, meaning that women covered by the social security scheme (to which UMs are not entitled) and not up to date receive reminder letters every by post, email, and telephone message (301,408). UMs women covered by the State Medical Aid can access this screening when they are in contact with a healthcare professional, but they are excluded from this organized screening strategy. This exclusion can partly explain the lower rates of CCS UMs compared to DMs. CCS and breast examinations appear to be less commonly offered to UMs women than to the general population, even when they consult a healthcare professional (409). Also, lack of knowledge and language skills on the language of the host-country seems to negatively impact rates of CCS but also breast cancer screening participation and HPV vaccination among UMs women (410). The comparison between UMs and DMs in our

study is open to debate, as we categorized UMs who had not been screened since arrival with those who had been screened but were not up to date.

Substance use. Our results showed that men from north African background had increased risk of smoking and unhealthy alcohol use. No clear associations with other SDoH were found. However, UMs who were isolated had significant higher rates of tobacco use, as well as those with precarious housing. UMs without children had higher rates of unhealthy alcohol use. These prevalences found among UMs are below those of the French population (411).

Studies showed that tobacco consumption among migrants increases with time spent in France due to the unhealthy assimilation effect (412,413). The prevalence of smoking is lower among migrants from North Africa and sub-Saharan Africa upon arrival, compared to non-migrants of the same age and educational level. After migration, the prevalence increases over time, reaching levels higher than those of native men from North Africa. Smoking behavior of migrants in France depends on the stage of the cigarette epidemic in their country of origin (317,411,414). Stage 1 has relatively low smoking rates (sub-Saharan Africa), while stage 2 has relatively high smoking rates (North Africa). The smoking behavior of migrants from North Africa reflects the influence of gender-specific norms after migration.

A higher risk of smoking among UMs compared to DMs was observed. The unhealthy assimilation effect described among the migrant population in the literature cannot explain this increased risk among UMs, as their length of stay in France is shorter than DMs. Poor living conditions such as poor access to housing and food insecurity negatively influence smoking habits and may better explain this increased risk (415–418). Stress and isolation linked with migration, seem to increase tobacco use among migrants (419,420). Smoking seems to be a means for coping with the stress that accumulates during the migration process and on arrival in the host country (381). As smoking rates decline in the general population, they rise among individuals with an immigrant background in France (288). Stress, isolation and lack of information on the resources to quit smoking, are also

obstacles for quitting. It seems that the impact of tobacco control measures varies based on the smokers' migration status (421).

Few data describe unhealthy alcohol use among UMs and migrants in general. Migrants in France seem to drink less alcohol that French natives (422). Migrant men from north-Africa may be more hazardous drinker and in France migrant women seem to have healthier behaviors towards alcohol than men which converge with our findings (422,423). Although our models did not reveal other factors associated to unhealthy alcohol use, evidence points towards a high influence of SDoH such as housing and hard-working conditions (423). It seems that social isolation and poverty as well as poor housing and violence are factors that can induce higher rates of alcohol drinking among migrants (378). Migrant women who are single-parents or experiencing psychological difficulties are at higher risk of using substance during pregnancy (379). Literature also suggests that a higher length of residence is associated to a higher risk of unhealthy alcohol use among migrants (423).

Strength and limitations. The main strength of this study lies in being the first to document preventive aspects of health of UMs in France. It explored access to preventive healthcare services as well as tobacco and unhealthy alcohol use, based on a representative randomly selected sample of UMs. Our study highlighted the positive role of health insurance and length of residence for a better access to preventive care.

Merging the two databases enabled us to compare UMs with a representative sample of the DMs in France.

However, the models comparing UMs and DMs were not adjusted for length of residence and other SDoH. Thus, the higher smoking rates and lower access to CCS among UMs cannot be separated from the length of residence and living conditions that are different in the two populations. Despite these limitations preventing us from explaining the role of SDoH, the differences observed reflect higher risk for UMs and are relevant for healthcare professionals receiving this population.

Answers to questions related to screening and vaccination are likely to be biased due to recall and memory errors. Results related to HIV and hepatitis screening should be interpreted with caution, as it is possible that the individuals were unable to differentiate between the tests performed, even though those testing are often performed together. The term “check-up” may be confusing because it can have different connotations: a clinical examination alone or combined with a blood test or chest X-ray. Finally, it is possible that some women may have interpreted a gynecological examination with a speculum or a vaginal swab (bacterial, virological, or mycological) as a cervical smear to screen for cervical cancer.

We regret the difficulty in comparing the variable related to alcohol consumption. In PPS, the AUDITc score was used to categorize consumption. This score is largely used in other studies and showed good sensitivity (385). In the EHIS survey, the interpretation of alcohol consumption was more complex and did not use the AUDITc score (424).

Finally, the power of the study limited our analyses. This can be seen in particular in the confidence intervals, which are sometimes very wide and therefore difficult to interpret (this is the case, for example, with the odds ratios for length of residence and variables relating to access to preventive care).

In conclusion, except for vaccination, more than half of UMs in the sample had access to preventive healthcare services months after arrival. The access was better for those with health insurance and those with a higher length of residence in France. Difficult access to healthcare insurance and the limited resources of organizations offering free preventive healthcare for UMs is a limit to the screening and vaccination catch-up in the 4 months after arrival. These results support the need to simplify healthcare insurance entry and renewal procedures for UMs.

Higher tobacco uses among UMs compared to DMs supports the role of psychosocial stress and isolation. This result confirms the crucial impact of structural determinants of health in UMs health and life. Improving living condition with positive public policies such as allowing access to the work market and social housing could improve health outcomes.

References. See at the end of the thesis.

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Ethics declaration

Ethics approval and consent to participate. The Premiers Pas Study involving human participants was reviewed and approved by the Institute for Research and Documentation in Health Economics. Informed consent for participation was obtained from each participant in accordance with the national legislation and the institutional requirements. The study was conducted under the control of the CNIL (Commission nationale de l'informatique et des libertés, registration number: 2203002 v 0). Participation in the survey was free and anonymous. It was conducted under the supervision of the CNIL, which guarantees respect for anonymity, privacy and the protection of personal data. The European Health Interview Survey is a mandatory survey (binding on questionnaire form and content) for EU member countries (European Commission Regulations n°141/2013 of February 19, 2013, and n°2018/255 of February 19, 2018), steered by Eurostat. The EHIS legal framework is governed by Regulation (EC) No. 1338/2008 of the European Parliament and the Council, dated 16 December 2008, which pertains to Community statistics on public health and health and safety at work.

Competing interests. The authors declare that they have no competing interests.

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Tables and figure

Table captions

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Table 2: Univariate and multivariate analyses for HIV, hepatits and tuberculosis screening (chest x-ray), vaccination and cervical cancer screening , Premiers Pas Study, 2019

Table 3: Univariate and multivariate analyses for at-risk tobacco smoking and alcohol misuse/dependence, Premiers Pas Study, 2019

Table 4: Comparisons of smoking and cervical cancer screening between the UMs and DMs, according to age and region of origin and stratified by gender for smoking, 2019.

Figure captions

Figure 1: Access to preventive care among undocumented migrants. Premiers Pas study, 2019.

For each preventive care: the left bar in blue represents those who did not receive the preventive care since arrival. The right bar represents those who receive the preventive care. The right bar is composed of three colors representing when the preventive care was received since arrival: in the first year after arrival in France (orange), between the second and the third year after arrival (green), between the fourth and the fifth year after arrival (yellow).

Addition of the left and right bar proportions is 100%.

For better clarity, the addition of the proportions within the right bar is 100%. Sample size for proportions of the right bar are as follow: check up N= 673, chest X-ray N= 487, HIV testing N= 602, hepatitis screening N= 574, vaccination N=371, cervical cancer screening N= 172

*: only women aged 25 to 65 years old were included

Table 1: Characteristics description for Premier Pas survey and EHIS populations, 2019

	Premiers Pas survey		EHIS		p-value
	n	% (weighed)	n	% (weighed)	
Total	1223		**1478**		
Demographic characteristics					
Gender	**1220**		**1478**		**<0.001**
Woman	426	28.8	783	52.6	
Man	794	71.2	695	47.4	
Age class	**1216**		**1478**		**<0.001**
18-29	333	36.2	146	10.3	
30-39	443	33.9	269	19.3	
40-59	384	27.6	624	40.8	
60 and more	56	2.3	439	29.6	
Migration characteristics					
Region of origin	**1209**		**1477**		
North-Africa	363	23.7	522	34.4	**<0.001**
Sub-Saharan Africa	630	62.5	241	15.8	
Asia	50	3.4	158	10.3	
Europe European-Union	47	1.8	367	27.4	
Europe outside European-Union	39	2.3	143	9.1	
Americas and Oceania	80	6.3	46	3.0	
Arrival in France	**1215**		**1471**		
Less than 3 months	132	15.3	1	0.1	**<0.001**
[3 months -1 year[	324	22.5	5	0.3	
[1 year -3 years]	314	28.3	43	3.1	
[3 years -5 years[	147	11.7	71	5.9	
More than 5 years	298	22.2	1351	90.6	
Motive for migration	**1036**				
Health	121	8.4	/	/	/
Not health	915	91.6	/	/	/
Administrative status upon arrival in France	**1189**				
With visa	623	41.3	/	/	/

Without visa	566	58.7	/	/	/
Social characteristics					
Current job	**1212**		**1478**		**<0.001**
Yes	286	21.1	745	54.4	/
No	926	78.9	733	45.6	/
Job in the country of origin	**1214**				
Employee and self-employed	540	44.9	/	/	/
Manual worker	361	32.3	/	/	/
Students and other	107	8.1	/	/	/
Did not work/has never worked	206	14.7	/	/	/
Fluency in the French	**1222**				
Very good/somewhat good	643	56.4	/	/	/
Not very well/poorly or very badly	277	21.6	/	/	/
Non-French speaking	302	22.0	/	/	/
Family environment					
Isolation	**1191**				
Alone	475	41.5	/	/	/
Alone with child	226	18.5	/	/	/
In a couple without children	132	10.7	/	/	/
In a couple with child(ren)	358	29.3	/	/	/
Material living conditions					
Housing type	**1214**				
Ordinary	536	38.1	/	/	/
Collective	219	19.4	/	/	/
Precarious	459	42.5	/	/	/
Food insecurity	**1214**				
Often	321	30.7	/	/	/
Sometimes	448	36.6	/	/	/
Never	445	32.7	/	/	/
Access to care					
Aide Médicale d'Etat	**1218**				
Yes	526	43.8	/	/	/
No	692	56.2	/	/	/

/: not available in the data base; p-value (Chi2): p-value using chi-square test

Table 2: Univariate and multivariate analyses for check-up and tuberculosis screening (chest x-ray) , Premiers Pas Study, 2019 (1/3)

Outcome	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)
	Check-up (n=1212)				Chest x-ray (n=1205)			
All	59.5 (696)			n=981	47.8 (506)			n=959
Demographic characteristics								
Gender	**1209**	**<0.001**			**1202**	0.755		
Woman	73.7 (274)		**2.41*** **	**2.50** [1.31-4.78], p=0.006**	55.2 (173)		**1.50***	1.77° [0.95-3.29], p=0.071
Man	53.8 (421)		ref	ref	45.0 (333)		ref	ref
Age class	**1205**	**<0.001**			**1198**	**<0.001**		
18-29/ 25-29 for CCS	45.7 (152)		ref	ref	37.9 (102)		ref	ref
30-39	66.4 (250)		**2.35***	**2.09* [1.02-4.25], p=0.041**	50.3 (161)		**1.66***	1.86° [0.94-3.69], p=0.077
40-82/40-65 pour CCS	68.9 (293)		**2.64*** **	**2.99** [1.45-6.18], p=0.003**	57.1 (242)		**2.18***	**2.17* [1.08-4.39], p=0.030**
Social characteristics								
Current job	**1201**	0.190			**1194**	**0.021**		
Yes	60.8 (175)		1.06	/	51.8 (136)		1.21	/
No	59.4 (519)		ref	/	46.9 (367)		ref	/
Job in the country of	**1203**	**0.001**			**1196**	0.452		
Employee and self-employed	66.7 (341)		1.51°	1.38 [0.68-2.83], p=0.371	47.9 (229)		1.02	0.73 [0.32-1.63], p=0.437
Manual worker	48.6 (180)		0.72	0.93 [0.41-2.10], p=0.861	44.4 (155)		0.89	0.97 [0.41-2.25], p=0.936
Students and other	70.7 (61)		1.82°	3.22° [0.98-10.61], p=0.055	63.8 (46)		1.95°	2.76 [0.84-9.04], p=0.094
does not work/has	57.0 (108)		ref	ref	47.4 (74)		ref	ref
Fluency in the French	**1211**	**0.002**			**1204**	**<0.001**		
Very good/somewhat	63.1 (398)		1.48°	1.08 [0.53-2.19], p=0.830	53.9 (297)		**2.07****	1.88 [0.91-3.89], p=0.089
Not very well/poorly or	55.9 (148)		1.10	0.81 [0.40-1.64], p=0.554	43.0 (121)		1.33	1.29 [0.55-2.98], p=0.558
non-French speaking	53.6 (149)		ref	ref	36.2 (87)		ref	ref
Migration characteristics								
Region of origin	**1198**	0.069			**1191**	**0.005**		
North-Africa	53.3 (193)		ref	ref	39.1 (130)		ref	ref
Sub-Saharian Africa	61.4 (378)		1.39°	**2.74** [1.40-5.35], p=0.003**	52.1 (285)		**1.69****	**2.42* [1.23-4.77], p=0.010**
Other	62.3 (116)		1.45°	1.00 [0.45-2.20], p=0.999	43.5 (83)		1.20	1.75 [0.76-4.05], p=0.192
Arrival in France	**1205**	**<0.001**			**1197**	**<0.001**		
Less than 3 months	20.2 (29)		ref	ref	16.3 (20)		ref	ref
[3 months -1 year[	48.1 (137)		**3.68***	**2.85* [1.07-7.59], p=0.036**	28.2 (78)		2.03°	1.73 [0.60-4.95], p=0.307
[1 year -3 years]	70.8 (200)		**9.59*****	**7.76*** [2.79-21.56], p<0.001**	54.3 (137)		**6.13*****	**6.78** 2.24-20.53], p=0.001**
[3 years -5 years[	76.9 (103)		**13.21*****	**12.64*** [4.13-38.69], p<0.001**	70.7 (79)		**12.44*****	**17.94*** [5.63-57.15], p<0.001**
More than 5 years	76.5 (224)		**12.88*****	**13.54*** [4.71-38.91], p<0.001**	71.0 (192)		**12.62*****	**20.48*** [6.42-65.30], p<0.001**
Motive for migration	**1029**	**0.001**			**1021**	**0.016**		
Health status	80.6 (85)		**3.18****	**3.80** [1.50-9.62], p=0.005**	66.0 (63)		**2.32****	**6.10*** [2.54-14.66], p<0.001**
non-health	56.6 (505)		ref	ref	45.5 (373)		ref	ref
Administrative status upon arrival in France	**1179**	0.653			**1172**	**0.010**		
With visa	351 (60.8)		1.09	/	239 (42.9)		0.70°	**0.40** [0.22-0.74], p=0.003**
Without visa	327 (58.7)		ref	/	257 (51.9)		ref	ref
Family environment								
Isolation	**1180**	**0.003**			**1174**	**0.001**		
Alone	54.7 (262)		ref	ref	42.9 (198)		ref	ref
Alone with child	69.8 (152)		**1.92***	0.57° [0.28-1.19], p=0.136	64.2 (116)		**2.38***	0.83 [0.38-1.82], p=0.645
In a couple without chil(dren)	55.2 (63)		1.02	1.05 [0.34-3.28], p=0.927	40.5 (39)		0.90	0.98 [0.33-2.89], p=0.974
In a couple with child(ren)	63.3 (201)		1.43°	0.94 [0.48-1.83], p=0.847	48.6 (142)		1.25	0.95 [0.54-1.66], p=0.848
Material living conditions								
Housing type	**1203**	**<0.001**			**1197**	**<0.001**		
Ordinary	63.9 (317)		ref	ref	45.0 (197)		ref	ref
Collective	65.8 (153)		1.09	1.04 [0.51-2.15], p=0.906	60.8 (127)		**1.89***	**2.05* [1.01-4.14], p=0.046**
Precarious	52.4 (220)		**0.62***	1.46 [0.78-2.75], p=0.238	44.6 (181)		0.98	**1.83* [1.00-3.32], p=0.048**
Food insecurity	**1204**	0.461			**1197**	0.282		
Often	55.3 (173)		ref	/	44.5 (131)		ref	/
Sometimes	62.2 (263)		1.33	/	52.6 (196)		1.38	/
Never	59.1 (253)		1.16	/	46.0 (175)		1.06	/
Access to care								
Aide Médicale d'Etat	**1207**	**<0.001**			**1200**	**<0.001**		
Yes	79.8 (401)		**4.95*****	**2.23** [1.24-3.99], p=0.007**	64.2 (296)		**3.25*****	1.43 [0.80-2.54], p=0.233
No	44.5 (120)		ref	ref	35.6 (210)		ref	ref

p-value (Chi2): p-value using chi-square test

OR : crude odds-ratio, aOR : adjusted odds-ratio; a: crude odd ratio, b: adjusted odd ratio ; p-value : °p < 0.20 ; *p < 0.05 ; **p < 0.01 ; ***p < 0.001

95%CI: 95% Confidence interval; /: variable not included in the final model

ref: reference category

(a): Univariate analysis (b): Multivariate analysis: Models after adjusting for socioeconomic related variables : gender, age, employment, job in the country of origin, fluency in French,region of origin, time since arrival in France, motive of migration, isolation, housing type, food insecurity, healthcare insurance with the Aide Médicale de l'Etat. Results are presented as follows: aOR 95%CI, p-value

Table 2: Univariate and multivariate analyses for HIV and hepatits screening , Premiers Pas Study, 2019 (2/3)

Outcome	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)
	HIV screening (n=1197)				Hepatitis screening (n=1172)			
All	56.3 (625)			n=971	53.9 (501)			n=949
Demographic characteristics								
Gender	**1194**	**0.002**			**1169**	**0.006**		
Woman	65.9 (241)		**1.74***	1.29 [0.69-2.41], p=0.434	66.1 (223)		**2.01***	1.60° [0.84-3.05], p=0.153
Man	52.6 (383)		ref	ref	49.3 (368)		ref	ref
Age class	**1190**	**<0.001**			**1165**	**<0.001**		
18-29/ 25-29 for CCS	39.9 (137)		ref	ref	38.3 (128)		ref	ref
30-39	67.6 (244)		**3.15*****	**2.87** [1.46-5.66], p=0.002**	64.7 (229)		**2.95*****	**2.45** [1.27-4.69], p=0.007**
40-82/40-65 pour CCS	63.9 (243)		**2.68*****	2.04° [0.99-4.19], p=0.053	60.6 (232)		**2.48*****	2.02° [0.97-4.19] p=0.59
Social characteristics								
Current job	**1186**	**0.040**			**1161**	**0.041**		
Yes	61.9 (163)		1.33	/	58.0 (152)		1.23	/
No	55.0 (457)		ref	/	52.9 (434)		ref	/
Job in the country of	**1188**	**0.002**			**1163**	**0.024**		
Employee and self-	66.1 (309)		**2.44***	1.61° [0.79-3.31], p=0.191	62.9 (282)		**2.28****	1.55 [0.73-3.27], p=0.255
Manual worker	47.7 (163)		1.14	1.05 [0.46-2.40], p=0.906	43.9 (160)		1.05	1.03 [0.45-2.37], p=0.948
Students and other	60.5 (53)		1.91°	2.14 [0.47-9.81], p=0.328	67.7 (56)		**2.81***	3.75° [0.92-15.35], p=0.066
does not work/has	44.5 (95)		ref	ref	42.7 (88)		ref	ref
Fluency in the French	**1196**	**<0.001**			**1171**	**<0.001**		
Very good/somewhat	61.6 (374)		**2.23***	1.02 [0.53-1.961], p=0.959	58.7 (357)		**2.14****	1.16 [0.61-2.20], p=0.650
Not very well/poorly or	57.0 (134)		**1.84***	0.60° [0.32-1.14], p=0.117	55.0 (126)		**1.83***	0.73 [0.37-1.49], p=395
non-French speaking	41.8 (117)		ref	ref	39.9 (107)		ref	ref
Migration characteristics								
Region of origin	**1185**	**<0.001**			**1158**	**<0.001**		
North-Africa	47.7 (134)		ref	ref	44.3 (131)		ref	ref
Sub-Saharian Africa	59.6 (379)		**1.61****	**3.14** [1.62-6.10], p=0.001**	57.5 (352)		**1.72***	**3.15** [1.61-6.18], p=0.001**
Other	57.0 (105)		1.45	**2.42* [1.14-5.13], p=0.022**	55.0 (101)		1.54°	1.81° [0.82-4.01], p=0.143
Arrival in France	**1189**	**<0.001**			**1164**	**<0.001**		
Less than 3 months	14.0 (23)		ref	ref	13.7 (22)		ref	ref
[3 months -1 year[	46.3 (124)		**5.27****	**4.90** [1.72-14.00], p=0.003**	43.0 (112)		**4.76****	**3.95** [1.55-10.01], p=0.004**
[1 year -3 years]	66.4 (187)		**12.11*****	**8.43*** [2.81-25.32], p<0.001**	65.0 (178)		**11.72*****	**7.08*** [2.73-18.35], p<0.001**
[3 years -5 years[	75.3 (86)		**18.70*****	**17.08*** [5.39-54.101], p<0.001**	69.0 (81)		**14.02*****	**11.06*** [3.83-31.95], p<0.001**
More than 5 years	75.2 (204)		**18.62*****	**19.49*** [6.26-60.67], p<0.001**	73.2 (196)		**17.26*****	**15.56*** [5.59-43.31], p<0.001**
Motive for migration	**1016**	0.243			**994**	0.141		
Health status	73.6 (68)		**2.17****	**3.04** [1.31-7.04], p=0.009**	71.7 (66)		**2.18***	**2.60* [1.10-6.17], p=0.030**
non-health	56.3 (471)		ref	ref	53.7 (445)		ref	ref
Administrative status	**1166**	0.127			**1141**	0.078		
With visa	297 (55.7)		0.96	/	287 (54.3)		1.03	/
Without visa	313 (56.7)		ref	/	289 (53.6)		ref	/
Family environment								
Isolation	**1167**	**<0.001**			**1143**	**<0.001**		
Alone	49.0 (223)		ref	ref	47.6 (213)		ref	ref
Alone with child	74.1 (155)		**2.98***	2.18° [0.94-5.07], p=0.069	65.4 (144)		2.08*	1.05 [0.49-2.27], p=0.891
In a couple without	64.0 (64)		1.85°	**3.38* [1.38-8.28], p=0.008**	60.5 (54)		1.68°	**3.17* [1.31-7.68], p=0.011**
In a couple with	53.9 (167)		1.22	0.93 [0.49-1.77], p=0.820	54.5 (166)		1.31	1.00 [0.53-1.91], p=0.988
Material living conditions								
Housing type	**1188**	**<0.001**			**1164**	**<0.001**		
Ordinary	60.6 (272)		ref	ref	58.6 (257)		ref	ref
Collective	67.9 (148)		**1.37**	1.03 [0.49-2.18], p=0.930	64.7 (137)		1.29	1.14 [0.56-2.32], p=0.725
Precarious	47.1 (200)		0.58*	1.18 [0.63-2.22], p=0.609	44.8 (193)		**0.57***	1.18 [0.64-2.19], p=0.587
Food insecurity	**1189**	0.756			**1163**	0.407		
Often	54.9 (168)		ref	/	49.5 (155)		ref	/
Sometimes	54.2 (230)		0.97	/	53.3 (225)		1.16	/
Never	58.8 (222)		1.17	/	57.0 (205)		1.35	/
Access to care								
Aide Médicale d'Etat	**1192**	**<0.001**			**1167**	**<0.001**		
Yes	73.0 (343)		**3.42*****	1.02 [0.59-1.79], p=0.939	73.2 (338)		**4.15*****	1.52° [0.87-2.64], p=0.141
No	44.2 (282)		ref	ref	39.7 (253)		ref	ref

p-value (Chi2): p-value using chi-square test

OR : crude odds-ratio, aOR : adjusted odds-ratio; a: crude odd ratio, b: adjusted odd ratio ; p-value : °p < 0.20 ; *p < 0.05 ; **p < 0.01 ; ***p < 0.001

95%CI: 95% Confidence interval; /: variable not included in the final model

ref: reference category

(a): Univariate analysis (b): Multivariate analysis: Models after adjusting for socioeconomic related variables : gender, age, employment, job in the country of origin, fluency in French,region of origin, time since arrival in France, motive of migration, isolation, housing type, food insecurity, healthcare insurance with the Aide Médicale de l'Etat.

Results are presented as follows: aOR 95%CI, p-value

Table 2: Univariate and multivariate analyses for vaccination and cervical cancer screening , Premiers Pas Study, 2019 (3/3)

Outcome	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)
	Vaccination (n=1198)				Cervical screening (CCS)* (n=357)			
All	36.2 (397)			n=971	51.2 (174)			n=297
Demographic characteristics								
Gender	**1195**	0.069			/	/	/	/
Woman	42.1 (153)		1.42°	1.28 [0.76-2.14], p=0.358	/	/	/	/
Man	33.9 (244)		ref	ref	/	/	/	/
Age class	**1191**	**0.007**			**357**	0.851		
18-29/ 25-29 for CCS	26.8 (90)		ref	ref	26.8(33)		ref	ref
30-39	40.9 (141)		**1.89***	1.51° [0.80-2.84], p=0.199	40.9 (78)		1.67	2.17 [0.64-7.41], p=0.216
40-82/40-65 pour CCS	42.2 (164)		**2.00****	1.33 [0.67-2.61], p=0.414	42.2 (63)		0.90	1.15 [0.31-4.18], p=0.836
Social characteristics								
Current job	**1187**	0.360			**356**	0.890		
Yes	39.3 (99)		1.18	/	52.8 (36)		1.08	/
No	35.3 (294)		ref	/	50.8 (137)		ref	/
Job in the country of origin	**1189**	**0.050**			**355**	0.375		
Employee and self-employed	42.0 (199)		1.41	/	54.2 (144)		1.10	0.77 [0.23-2.53], p=0.665
Manual worker	31.2 (110)		0.89	/	8.6 (4)		**0.09***	0.30 [0.01-6.90], p=0.452
Students and other	30.4 (27)		0.85	/	51.8 (23)		1.00	1.08 [0.27-4.38], p=0.910
does not work/has never	33.9 (61)		ref	/	51.8 (32)		ref	ref
Fluency in the French	**1197**	**0.013**			**356**	**<0.001**		
Very good/somewhat good	36.4 (228)		1.39°	0.97 [0.51-1.85], p=0.929	61.5 (112)		**4.16****	2.04° [0.75-5.57], p=0.164
Not very well/poorly or very	42.3 (92)		1.79°	1.43 [0.64-3.18], p=0.330	47.9 (33)		2.40°	0.56 [0.13-2.39], p=0.434
non-French speaking	29.1 (77)		ref	ref	27.7 (28)		ref	ref
Migration characteristics								
Region of origin	**1184**	**0.006**			**356**	**<0.001**		
North-Africa	29.3 (96)		ref	ref	43.7 (38)		ref	ref
Sub-Saharian Africa	38.2 (226)		1.49°	**2.24* [1.15-4.37], p=0.018**	64 (115)		2.29°	**6.13** [1.90-19.73], p=0.002**
Other	38.6 (70)		1.52°	1.42 [0.64-3.15], p=0.395	21.5 (20)		**0.35***	0.37° [0.11-1.24], p=0.109
Arrival in France	**1190**	**<0.001**			**356**	**<0.001**		
Less than 3 months	4.1 (8)		ref	ref	4.8 (4)		ref	ref
[3 months -1 year[	26.9 (61)		**8.56*****	**5.84** [1.59-21.49], p=0.008**	32.9 (38)		**9.67*****	**7.60* [1.11-51.79], p=0.038**
[1 year -3 years]	40.9 (108)		**16.05*****	**14.81** [3.89-56.44], p<0.001**	68.8 (57)		**43.49*****	**35.04*** [4.90-250.59], p<0.001**
[3 years -5 years[	52.8 (69)		**26.00*****	**28.13*** [6.64-119.08], p<0.001**	68.8 (25)		**43.60*****	**73.37*** [8.21-655.86], p<0.001**
More than 5 years	54.1 (149)		**27.36*****	**29.93*** [7.07-126.70], p<0.001**	65.1 (49)		**36.90*****	**130.27*** [12.32-1374.01], p<0.001**
Motive for migration	**1016**	0.348			**308**	0.472		
Health status	49.6 (44)		1.83°	2.27° [0.99-5.19], p=0.052	33.6 (20)		0.47°	1.00 [0.27-3.65], p=0.999
non-health	35.0 (293)		ref	ref	52 (123)		ref	ref
Administrative status upon	**1165**	0.200			**348**	0.292		
With visa	179 (32.2)		0.77	/	105 (49.4)		0.80	/
Without visa	205 (38.2)		ref	/	67 (54.9)		ref	/
Family environment								
Isolation	**1167**	**0.004**			**349**	**0.002**		
Alone	30.3 (137)		ref	ref	23.7 (27)		ref	ref
Alone with child	43.9 (95)		**1.80***	0.89 [0.43-1.88], p=0.769	68.7 (67)		**7.07****	**7.09** [2.17-23.27], 0.001**
In a couple without chil(dren)	39.0 (39)		1.47	1.84° [0.92-3.67], p=0.083	54.8 (15)		**3.89***	**6.56* [1.08-39.73], p=0.041**
In a couple with child(ren)	39.4 (117)		1.49°	1.39 [0.78-2.49], p=0.267	54.0 (62)		**3.77****	**6.23** [1.98-19.59], p=0.002**
Material living conditions								
Housing type	**1190**	**<0.001**			**355**	**0.048**		
Ordinary	33.7 (158)		ref	ref	46.5 (79)		ref	ref
Collective	51.8 (99)		**2.12****	1.73° [0.91-3.27], p=0.094	56.9 (41)		**1.52**	0.35° [0.09-1.32], p=0.121
Precarious	31.4 (139)		0.90	1.67° [0.94-2.99], p=0.082	53.5 (53)		1.33	0.92 [0.35-2.42], p=0.868
Food insecurity	**1190**	0.558			**355**	0.804		
Often	31.3 (97)		ref	ref	56.3 (47)		ref	/
Sometimes	33.4 (144)		1.10	**0.93 [0.49-1.75], p=0.821**	50.6 (58)		0.79	/
Never	43.8 (152)		1.71°	1.53° [0.82-2.87], p=0.183	46.8 (68)		0.68	/
Access to care								
Aide Médicale d'Etat	**1193**	**<0.001**			**357**	**<0.001**		
Yes	50.6 (241)		**3.03*****	1.34 [0.77-2.31], p=0.301	64.9 (107)		**3.35****	1.07 [0.43-2.69], p=0.882
No	25.3 (154)		ref	ref	35.6 (67)		ref	ref

*Only women aged 25 to 65 years old were included

p-value (Chi2): p-value using chi-square test

OR : crude odds-ratio, aOR : adjusted odds-ratio; a: crude odd ratio, b: adjusted odd ratio ; p-value : °p < 0.20 ; *p < 0.05 ; **p < 0.01 ; ***p < 0.001

95%CI: 95% Confidence interval; /: variable not included in the final model

ref: reference category

(a): Univariate analysis (b): Multivariate analysis: Models after adjusting for socioeconomic related variables : gender, age, employment, job in the country of origin, fluency in French,region of origin, time since arrival in France, motive of migration, isolation, housing type, food insecurity, healthcare insurance with the Aide Médicale de l'Etat. Results are presented as follows: aOR 95%CI, p-value

Table 3: Univariate and multivariate analyses for at-risk tobacco smoking and alcohol misuse/dependence, Premiers Pas Study, 2019

	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)	Weigthed % (n)	Chi-2 test (p-value)	Univariate analysis (a)	Multivariate analysis - final model (b)
Outcome	At-risk tobacco smoking (n=1223)				Alcohol misuse or dependence (n=1223)			
All	20.8 (254)			n=989	14.1 (172)			n=1152
Demographic characteristics								
Gender	**1220**	**<0.001**			**1220**	**<0.001**		
Woman	5.1 (21)		ref	ref	7.6 (28)		ref	ref
Man	26.8 (231)		**6.78*** **	**5.13*** [2.29 - 11.51], p<0.001**	16.8 (144)		**2.45****	**2.57** [1.29 - 5.15], p=0.007**
Age class	**1216**	**0.045**			**1216**	0.220		
18-29	23.6 (63)		1.15	1.65 [0.73 - 3.70], p=0.226	11.8 (42)		ref	ref
30-39	17.7 (82)		0.80	1.05 [0.55 - 2.03], p=0.878	14.7 (57)		1.29	1.45 [0.64 - 3.32], p=0.376
40-82	21.2 (109)		**ref**	ref	15.8 (72)		1.41	1.48 [1.07 - 6.44], p=0.403
Social characteristics								
Current job	**1212**	0.326			**1212**	**0.001**		
Yes	22.2 (65)		1.15	/	18.1 (58)		1.47	/
No	20.4 (186)		ref	/	13.1 (113)		ref	/
Job in the country of	**1214**	**0.001**			**1214**	**0.003**		
Employee and self-employed	16.7 (92)		ref	ref	9.3 (61)		ref	ref
Manual worker	25.3 (101)		1.69°	1.00 [0.52 - 1.92], p=0.996	18.9 (71)		**2.28****	**2.14* [1.11 - 4.14], p=0.024**
Students and other	14.4 (22)		0.83	0.57 [0.20 - 1.64], p=0.294	22.2 (15)		**2.78***	**2.85* [1.12 - 7.29], p=0.029**
does not work/has	24.0 (36)		1.57	1.39 [0.59 - 3.28], p=0.456	10.7 (24)		1.17	1.07 [0.41 - 2.77], p=0.886
Fluency in the French	**1222**	0.739			**1222**	0.111		
Very good/somewhat	19.4 (129)		ref	/	14.1 (89)		ref	ref
Not very well/poorly or	22.2 (57)		1.18	/	7.5 (31)		0.50°	0.48° [0.20 - 1.16], p=0.104
non-French speaking	23.1 (67)		1.24	/	20.4 (52)		1.56°	1.13 [0.48 - 2.65], p=0.776
Migration characteristics								
Region of origin	**1209**	**<0.001**			**1209**	**<0.001**		
North-Africa	42.5 (118)		**5.02*****	**6.11*** [3.22- 11.57], p<0.001**	21.8 (55)		**2.82****	**2.53* [1.23 - 5.21], p=0.011**
Sub-Saharian Africa	12.9 (78)		ref	ref	9.0 (62)		ref	ref
Other	19.3 (54)		1.62°	**2.53* [1.10- 5.82], p=0.029**	21.7 (50)		**2.79****	**2.62* [1.07 - 6.44], p=0.035**
Arrival in France	**1215**	**<0.001**			**1215**	**<0.001**		
Less than 3 months	23.9 (32)		ref	ref	11.8 (13)		ref	/
[3 months -1 year[	12.5 (42)		**0.45°**	0.60 [0.23 - 1.57], p=0.301	6.9 (21)		0.55	/
[1 year -3 years]	13.5 (48)		**0.50°**	0.71 [0.28 - 1.80], p=0.474	14.9 (44)		1.31	/
[3 years -5 years[	25.3 (33)		1.08	1.37 [0.28 - 1.80], p=0.603	16.3 (23)		1.45	/
More than 5 years	34.3 (97)		1.66	2.00° [0.72 - 5.61], p=0.186	19.8 (68)		1.84	/
Motive for migration	**1036**	0.059			**1036**	0.364		
Health status	11.2 (17)		**0.43***	0.51° [0.21 - 1.23], p=0.134	16.0 (14)		1.06	/
non-health	22.7 (196)		ref	ref	15.3 (134)		ref	/
Administrative status upon arrival in France	**1187**	0.438			**1189**	0.508		
With visa	19.5 (127)		0.91	/	15.9 (92)		1.25	/
Without visa	21.1 (118)		ref	/	13.1 (76)		ref	/
Family environment								
Isolation	**1191**	**<0.001**			**1191**	**<0.001**		
Alone	25.2 (128)		**2.27***	1.31 [0.62 - 2.78], p=0.474	16.6 (88)		2.01°	1.63 [0.76 - 3.49], p=0.206
Alone with child(ren)	23.7 (46)		2.10°	1.94° [0.79 - 4.76], p=0.148	14.2 (33)		1.67	1.88° [0.73 - 4.82], p=0.189
In a couple without child(ren)	19.9 (21)		1.67	0.85 [0.21 - 3.43], p=0.824	18.6 (21)		2.31°	1.77 [0.69 - 4.57], p=0.235
In a couple with child(ren)	12.9 (53)		ref	ref	9.0 (28)		ref	ref
Material living conditions								
Housing type	**1214**	**<0.001**			**1214**	**0.022**		
Ordinary	17.5 (86)		ref	ref	17.8 (83)		1.32	1.30 [0.70- 2.42], p=0.407
Collective	15.9 (40)		0.89	1.44 [0.62- 3.34], p=0.552	7.2 (18)		0.47°	0.59 [0.21 - 1.63], p=0.309
Precarious	25.7 (125)		1.63°	1.56 [0.79- 3.06], p=0.358	14.0 (70)		ref	ref
Food insecurity	**1214**	0.265			**1214**	0.182		
Often	25.3 (69)		1.39	/	11.1 (36)		ref	/
Sometimes	18.6 (102)		0.94	/	16.3 (71)		1.57	/
Never	19.6 (82)		ref	/	14.8 (65)		1.40	/
Access to care								
Aide Médicale d'Etat	**1218**	0.624			**1218**	0.600		
Yes	19.5 (106)		0.87	1.36 [0.68 - 2.73], p=0.387	14.7 (77)		1.18	1.35 [0.75 - 2.42], p=0.318
No	21.8 (147)		ref	ref	13.6 (94)		ref	ref

p-value (Chi2): p-value using chi-square test

OR : crude odds-ratio, aOR : adjusted odds-ratio; a: crude odd ratio, b: adjusted odd ratio ; p-value : °p < 0.20 ; *p < 0.05 ; **p < 0.01 ; ***p < 0.001

95%CI: 95% Confidence interval; /: variable not included in the final model

ref: reference category

(a): Univariate analysis (b): Multivariate analysis: Models after adjusting for socioeconomic related variables : gender, age, employment, job in the country of origin, fluency in French,region of origin, time since arrival in France, motive of migration, isolation, housing type, food insecurity, healthcare insurance with the Aide Médicale de l'Etat. Results are presented as follows: aOR 95%CI, p-value

Table 4: Comparisons of smoking and cervical cancer screening between the Ums and DMs, according to age and region of origin and stratified by gender for smoking, 2019.

	Description by age and gender									
	Smoking					Cervical cancer screening				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	% (weighed)	n	% (weighed)		n	% (weighed)	n	% (weighed)	
Total	254/1223	20.8%	198/1478	13.7%	**<0.001**	161/355	50.1%	414/504	83.1%	**<0.001**
Gender					**<0.001**					
Woman	21/426	5.1%	67/783	8.8%		/	/	/	/	/
Man	231/794	26.8%	131/695	19.0%		/	/	/	/	/
Age class					**0.027**					**<0.001**
18-29	63/333	23.6%	15/146	13.5%		32/71	45.2%	31/33	94.7%	
30-39	82/443	17.7%	28/269	10.4%		76/155	58.8%	122/134	90.9%	
40-59	100/384	22.2%	115/624	18.7%		53/129	41.2%	261/337	78.1%	
60 and more	9/56	9.3%	40/439	8.8%						
	Description by region of origin									
	Smoking					Cervical cancer screening				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	% (weighed)	n			n	% (weighed)	n	% (weighed)	
Region of origin	**250/1209**		**198/1477**		**<0.001**	**160/354**		**414/504**		**<0.001**
North-Africa	118/363	42.5%	78/522	14.9%		36/92	43.0%	125/159	78.8%	
Sub-Saharian Africa	78/630	12.9%	17/241	7.1%		106/194	62.6%	91/101	92.7%	
Asia	14/80	20.8%	16/158	10.2%		9/36	21.6%	40/45	89.4%	
Europe European-Union	23/47	31.3%	54/367	14.7%		1/4	3.9%	102/125	83.3%	
Europe outside European Union	6/39	9.1%	30/143	24.0%		6/16	27.6%	39/54	74.4%	
Americas and Oceania	11/50	17.2%	3/46	6.5%		2/12	17.5%	17/20	80.0%	
	Smoking stratified by gender									
	Women					Men				
	Premiers Pas		EHIS		p-value (chi-2 test)	Premiers Pas		EHIS		p-value (chi-2 test)
	n	% (weighed)	n	% (weighed)		n	% (weighed)	n	% (weighed)	
Age class	**21/424**		**67/783**		**0.017**	**231/790**		**131/695**		**<0.001**
18-29	2/114	0.6%	4/83	10.2%		60/218	29.7%	11/63	17.4%	
30-39	8/159	5.0%	10/162	5.8%		74/284	24.2%	18/107	17.7%	
40-59	11/129	10.3%	35/321	11.6%		88/254	26.8%	80/303	26.0%	
60 and more	0/22	0.0%	18/217	7.0%		9/34	15.0%	22/222	10.7%	

p-value (Chi2): p-value using chi-square test

p-value : °p < 0.20 ; *p < 0.05 ; **p < 0.01 ; ***p < 0.001

C. Conclusion

Except for vaccination, more than half of UMs in the sample had access to preventive healthcare services months after arrival. The access was better for those with health insurance and those with a higher length of residence in France. Difficult access to healthcare insurance and the limited resources of organizations offering free preventive healthcare for UMs is a limit to the screening and vaccination catch-up in the 4 months after arrival. These results support the need to simplify healthcare insurance entry and renewal procedures for UMs.

Higher tobacco uses among UMs compared to DMs supports the role of psychosocial stress and isolation. This result confirms the crucial impact of structural determinants of health in UMs health and life. Improving living condition with positive public policies such as allowing access to the work market and social housing could improve health outcomes.

Chapter 3 : Pain as a symptom of mental health among undocumented migrants

A. Introduction

Pain is a frequent reason of consultation for UMs, which initiates first contact with the healthcare system in the host country (67,68). The literature suggests that pain is often experienced by UMs, with musculoskeletal pain being the most frequently reported type in healthcare settings (59,69). UMs often earn an income through manual and physically demanding occupations that can induce, maintain or increase musculoskeletal pain (2,3,70).

Among UMs, mental health and pain are often associated with SDoHs. It is therefore worth investigating whether the relationship between pain and mental health persists once SDoHs are controlled for. We hypothesized that this relationship would persist after controlling for SDoHs. Our main objective was to explore whether the association between mental health and pain remained among UMs in France after adjusting for SDHs.

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Pain as a Symptom of Mental Health Conditions Among Undocumented Migrants in France: Results From a Cross-Sectional Study

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Objectives: This study aimed to explore the associations between mental health status and experienced pain among undocumented migrants (UMs) in France.

Methods: We used data from the multicentric cross-sectional "Premier Pas" study conducted in the Parisian and Bordeaux regions from February to April 2019. Participants over 18 years of age were recruited from sixty-three sites. Pain was assessed through two variables: overall pain and musculoskeletal pain. Mental health conditions, including anxiety, sleep disorders, depression, and posttraumatic stress disorder (PTSD) were evaluated. Logistic regression models were used to explore associations, controlling for social determinants of health (SDHs).

Results: Our findings revealed significant associations between mental health status and pain among the 1,188 included participants. Sleep disorder was associated to higher odds of musculoskeletal pain (aOR = 2.53, 95% CI [1.20–5.33], p = 0.014). Stratified results indicated that among women, depression was associated to higher odds of pain (aOR = 4.85, 95% CI [1.53–13.36], p = 0.007).

Conclusion: This large study confirms the connection between mental health status and pain among UMs, providing valuable evidence for clinicians to address mental health issues in this population.

Keywords: transients and migrants, pain, anxiety, sleep disorder, depression

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INTRODUCTION

The term undocumented migrants (UMs) refers to individuals without formal residence recognition, resulting in an irregular migration status [1]. Some UMs may have held temporary permits that have expired, whereas others enter a country without permission or are denied asylum. The exact number of UMs in Europe and France is uncertain, with varying estimates. In France, UMs are prohibited from legal employment, often resorting to informal jobs that lack essential protections and rights [2].

Migrants and individuals in ethnic minority groups experience health disadvantages due to intersecting factors such as racial identity and socioeconomic status, particularly vulnerable groups such as women and sex workers [3].

Research on health disparities between UMs and regular residents (including documented migrants) in Europe is limited. However, evidence shows that UMs face numerous health challenges [4]. Compared with the majority population, UMs report poorer self-perceived health and are at increased risk for mortality from non-communicable diseases, such as cardiovascular issues and cancers [1, 4–9]. High rates of maternal mortality and adverse birth outcomes, including preterm birth and low birth weight, have also been noted among UMs [1, 10]. Furthermore, undocumented women often have limited access to contraception and family planning services, resulting in higher rates of unintended pregnancies and poorer maternal and child health outcomes [1, 11].

Mental health is another critical area, as UMs are more likely to have risk factors for conditions such as depression, anxiety, and posttraumatic stress disorder (PTSD) than both the general population and documented migrants are [1, 4, 12, 13].

In France, UM faces a greater burden of HIV and other infectious diseases, including significant rates of dental infections and chronic hepatitis B [14]. Healthcare for UMs is a polarizing issue in France [15]. The Aide Médicale d'Etat (AME, State Medical Aid) provides means-tested healthcare access, with residence in the country for more than 3 months and low income required for eligibility [16]. Nearly half of eligible individuals do not apply for this program, resulting in limited access [17–20]. AME holders often face discrimination, leading to unmet health needs [21]. Barriers to care increase the likelihood of delayed diagnoses, and while some non-governmental organizations (NGOs) offer support, their capacity for follow-up and preventive care is limited [19, 21–26].

Chronic pain, particularly musculoskeletal pain, contributes significantly to mental illness [27]. A positive association between pain and mental health has been described, although the causal pathway remains unclear [28–31]. Bidirectional relationships exist, with similar risks for developing mental illness due to pain and *vice versa* [32]. Both pain and mental illness share biological mechanisms and brain regions [33, 34]. Behavioral factors can also explain this relationship. For example, the fear–avoidance model suggests that negative thought patterns can lead to fear of movement, perpetuating a cycle of pain, disability, and depression [35]. The relationship between pain and mental health seems to vary according to gender, with the effect being stronger among females [36, 37].

In the general population, social determinants of health (SDHs), such as income or employment status, have been identified as key factors associated with pain [38]. For example, associations between food insecurity and site-specific pain, such as musculoskeletal pain, have been described in the general population [39–41]. Socioeconomically deprived individuals are more likely to experience chronic pain, more severe pain, and a greater degree of pain-related disability [40, 42].

In immigrant populations, associations between mental health and SDHs have been described [2, 43–46]. Poor working conditions are linked to adverse health outcomes and pain in immigrants [2, 43, 47–49].

For UMs in Europe, few studies have provided evidence on the associations between SDHs and mental health [4, 13, 50]. Some studies indicate that postmigration housing insecurity is associated with worse mental health in adult UMs [51, 52]. Food insecurity and a longer duration of residence in the host country are also linked to poorer mental health among UMs in the United States (U.S.) [53]. Additionally, the type of work contract may influence health outcomes for UM workers [54]. Conversely, social support and community engagement are protective factors for the mental health of UMs in Europe [51, 52, 55]. Gaining documented status has positive effects on the mental health of UMs in Switzerland [50, 56].

The literature describes associations between mental health and pain in various immigrant groups, with stronger links to conditions such as depression, PTSD or anxiety in immigrant populations than in the general population [46]. Among UMs in the U.S., associations between pain and psychological distress, such as anxiety and depression, have been described [57]. In France, however, data on UMs remain limited, and the relationship between pain and mental health in this group has not been studied.

Immigrant populations face migration-related stressors, such as physical and verbal violence, which worsen the effects of displacement, including limited resource availability and exclusion from citizenship-oriented health policies [58, 59]. The literature describes a high prevalence of depression, anxiety, stress, sleep disorders, and PTSD among immigrants during and after migration [60, 61]. PTSD and depression are particularly prevalent among UMs compared with the general population and are influenced by low socioeconomic status and integration policies [51, 62].

UMs experiencing social isolation, abuse, or financial instability are at increased risk of mental health issues such as anxiety, depression or sleep disorders [50, 52, 58, 63, 64]. Access to psychosocial healthcare is often hindered by a lack of insurance, taboos about mental health, and distrust in practitioners' abilities to treat mental health conditions [55, 58, 63]. Since UMs may not spontaneously report mental health difficulties, healthcare professionals need to actively inquire about the needs of these individuals [12].

Pain is a frequent reason for consultation, which initiates first contact with the healthcare system in the host country [65, 66]. The literature suggests that pain is often experienced by UMs, with musculoskeletal pain being the most frequently reported type in healthcare settings [58, 67].

UMs often earn an income through manual and physically demanding occupations that can induce, maintain or increase musculoskeletal pain [2, 3, 68].

Among UMs, mental health and pain are often associated with SDHs. It is therefore worth investigating whether the relationship between pain and mental health persists once SDHs are controlled for. We hypothesized that this relationship would persist after controlling for SDHs. Our main objective was to explore whether the association between mental health and pain remained among UMs in France after adjusting for SDHs.

METHODS

Study Design and Participants

Premier Pas was a multicentric cross-sectional study carried out in the Parisian and Bordeaux regions of France between February and April 2019. This study, which was based on multidisciplinary approaches, sought to better understand the experiences of UMs living in France and to assess their health status and access to rights and healthcare. The inclusion criteria consisted of being undocumented and over 18 years old. The questionnaire was translated into fourteen different languages to interact with participants: French, English, Spanish, Russian, Albanian, Portuguese, Arabic, Dari, Chinese, Tamil, Pashto, Bengali, Pulaar, and Bambara [17–19]. Individuals were recruited from 63 sites that provide support or assistance for individuals experiencing social deprivation and immigrants [19]. The structures included "Espace Solidarité Insertion," which offers daytime shelter, social and health services for homeless people, various NGOs, and Hospital Health Access Sites ("Permanence d'Accès aux Soins de Santé"). The latter provide social assistance and healthcare to vulnerable populations, but their geographic scope is limited to certain cities. Additionally, another type of structure included was local health insurance centers ("Caisses Primaires d'Assurance Maladie"), which operate at a departmental level and deliver various social subsidies and indemnities for registered beneficiaries for claims ranging from sickness, pregnancy, disability or death. Point of Access to Rights ("Point d'accès aux droits"), which are free and permanent reception sites, provide information and resources for legal or administrative problems and were also included as recruitment sites. Finally, three more recruitment sites were included: public baths, free health centers of Doctors of the World ("CASO") and maternal and child protection centers ("Protection Maternelle et Infantile"), which is a departmental service that is responsible for protecting the health of mothers and newborns.

Data Collection

Dependent Variables

Data on pain experienced at the time of the study were collected, and the pain experienced included abdominal, musculoskeletal, headache/migraine, and chest or pelvic pain. A binary variable, "all pain," was created (musculoskeletal or abdominal, or headache/migraine or chest or pelvic pain) from the variables related to the different types of pain. As we were more interested in the experience of pain than its mechanism or cause, this grouping seemed justified and, at the same time, enabled us to increase the power of our analyses.

Owing to the sample size, the comparative analyses were performed only on musculoskeletal pain and on the variable "all pain."

Independent Variables

Mental health was assessed through several questions. The participants were asked if they were currently experiencing various conditions, including mental health conditions. If a participant answered "yes" for a mental health condition, then follow-up questions were asked to clarify whether they were experiencing a sleep disorder or anxiety. For depression, we used the Patient Health Questionnaire-9 (PHQ-9) and a cutoff score of 10 or more to estimate moderate to severe depression [69]. PTSD was assessed with the Primary Care PTSD Screen for DSM-5 (PC-PTSD-5) [70]. A score of three or above was used as the threshold for diagnosing PTSD. Depression and PTSD were assessed with the PHQ-9 and the PC-PTSD-5, respectively, for all participants regardless of their answers to the general question.

Our literature review, described in the introduction, helped identify confounders related to pain and mental health. We categorized these determinants into coherent groups according to the following: demographic characteristics (age and gender), migration characteristics (region of origin, time since arrival in France, motives for migration), social characteristics (current job, job in the country of origin, fluency in French), the family environment (isolation), material living conditions (housing type, food insecurity) and access to care ("Aide Médicale de l'Etat", AME"). The latter is a specific means-tested publicly funded health insurance for UMs that covers medical expenses at 100% of real costs with some excluded treatments [71].

Data Analysis

In the first stage, we described the prevalence of different types of pain using percentages and then compared the categories of pain according to different mental health conditions via a chi-square test. The data were weighted on the basis of the probability of inclusion.

In the second step, we performed univariate analyses via logistic regression for musculoskeletal pain and the variable "all pain," with pain as the dependent variable and mental health as the main independent variable. When an association was significant in the univariate analysis, we performed multivariate analyses. A difference was considered significant when the p-value of the crude odds ratio (OR) for the univariate result was <0.200.

To address collinearity and avoid overadjustment in the multivariate analyses, we used a hierarchical regression method. Blockwise selection was used, with pain as the dependent variable and mental health as the independent variable, and the different categories were added step by step. In this six-step process, we added each group of variables sequentially, monitoring how the coefficients changed to ensure that the models remained robust. To avoid weighing down the models and reducing their performance, we added only the variables with a p-value of the crude OR of less than 0.200 to the model. Alternatively, within a group of variables for which all the crude ORs were greater than or equal to 0.200, we selected the variable with the smallest p-value.

For power purposes, the age categories "18–29 years" and "30–39 years" were grouped together into the category "18–39 years" in some analyses when there were small numbers in one category.

In the final step, analyses were performed to stratify by gender, as the literature has shown that associations between pain and mental health are influenced by gender [36, 37].

TABLE 1 | Description of the population (Premiers Pas, France, 2019).

	n	% (weighed)
Total	1,223	
Demographic characteristics		
Gender	**1,220**	
Woman	426/1,220	28.8
Man	794/1,220	71.2
Age category	1,216	
18–29	333/1,216	36.2
30–39	443/1,216	33.9
40 or older	440/1,216	29.9
Migration characteristics		
Region of origin	1,209	
North Africa	363/1,209	23.7
Subsaharan Africa	630/1,209	62.5
Other	216/1,209	13.8
Arrival in France	1,215	
Less than 3 months	132/1,215	15.3
3 months –1 year	324/1,215	22.5
1 year –3 years]	314/1,215	28.3
3 years–5 years	147/1,215	11.7
More than 5 years	298/1,215	22.2
Reason for migration	1,036	
Health	121/1,036	8.4
Not health	915/1,036	91.6
Social characteristics		
Current job	1,212	
Yes	286/1,212	21.1
No	926/1,212	78.9
Job in the country of origin	1,214	
Employee and self-employed	540/1,214	44.9
Manual worker	361/1,214	32.3
Student and other	107/1,214	8.1
Does not work/has never worked	206/1,214	14.7
Fluency in French	1,222	
Very good/somewhat good	643/1,222	56.4
Not very good/poor or very bad	277/1,222	21.6
Non-French speaking	302/1,222	22.0
Family environment		
Isolation	1,191	
Alone	475/1,191	41.5
Alone with a child	226/1,191	18.5
In a couple without children	132/1,191	10.7
In a couple with child (ren)	358/1,191	29.3
Material living conditions		
Housing type	1,214	
Ordinary	536/1,214	38.1
Collective	219/1,214	19.4
Precarious	459/1,214	42.5
Food insecurity	1,214	
Often	321/1,214	30.7
Sometimes	448/1,214	36.6
Never	445/1,214	32.7
Access to care		
Aide Médicale d'Etat[a]	1,218	
Yes	526/1,218	43.8
No	692/1,218	56.2

[a]*Healthcare insurance for undocumented immigrants translates as "State Medical Assistance."*

The threshold of significance was 0.05 and 95% confidence intervals were used. All analyses were performed with Stata software.

RESULTS

A total of 1,223 participants were included in the Premier Pas study, and 1,188 answered questions related to current health conditions. Overall, 28.8% of the participants were women, and the mean age was 37.1 years (95% confidence interval (CI) [36.5–37.7]). In terms of geographic origin, 62.5% of the participants were from sub-Saharan Africa, and 23.7% were from North Africa. Approximately half of the individuals in the sample were registered beneficiaries of the AME at the time of the study. A total of 37.8% of the participants had arrived less than 1 year before the time of the survey, and 33.9% had lived in France for at least 3 years. More than half of the participants were fluent in French (56.4%). Regarding material living conditions, 42.5% of the participants had precarious housing, and 30.7% reported often facing food insecurity. **Table 1** displays all the characteristics of the population.

A total of 14.3% of the participants reported experiencing pain (n = 176) regardless of the type, 8.3% (n = 103) reported experiencing musculoskeletal pain, 3.5% (n = 48) reported experiencing abdominal pain, 2.7% (n = 37) reported experiencing headache, 1.2% reported experiencing pelvic pain (n = 25) and 1.8% reported experiencing chest pain (n = 12).

No differences were found between women and men except in pelvic pain, for which the rate was greater among women (**Figure 1**).

In terms of mental health, 11.5% of the participants reported having anxiety (n = 131), 15% reported having sleep disorders (n = 176), 29.5% had moderate to severe depression (n = 384, PHQ-9 score), and 16.2% had PTSD (n = 210, PC-PTSD-5 score).

In terms of gender, no differences were found between women and men. The proportions are reported for the following conditions: anxiety (10.6% n = 50/418 and 11.4%, n = 78/767), sleep disorders (14.5%, n = 72/418 and 15.0%, n = 102/767), depression (32.9%, n = 164/367 and 27.9%, n = 219/663) and PTSD (18.7%, n = 85/409 and 15.0%, n = 123/764).

Pain and Mental Health

Table 2 presents crude and adjusted associations between pain (all pain and musculoskeletal pain) and mental health. Individuals who were depressed, those with sleep disorder and those with anxiety were more likely to report pain. Individuals with PTSD had significantly higher likelihood of overall pain, at bivariate level and not in multivariate one. No difference was observed between musculoskeletal pain and PTSD.

Multivariate analyses were performed when the univariate association was significant. The multivariate analyses controlling for socioeconomic indicators revealed that sleep disorder was associated with higher odds of overall pain (adjusted odds ratio (aOR) = 2.83, 95% CI [1.39–5.76], $p = 0.040$). Sleep disorder was also associated with higher odds of musculoskeletal pain (aOR = 2.53, 95% CI [1.20–5.33], $p = 0.014$).

Stratified Analyses by Gender

As shown in **Table 3**, among women, those with depression had significantly higher odds of overall pain after controlling for

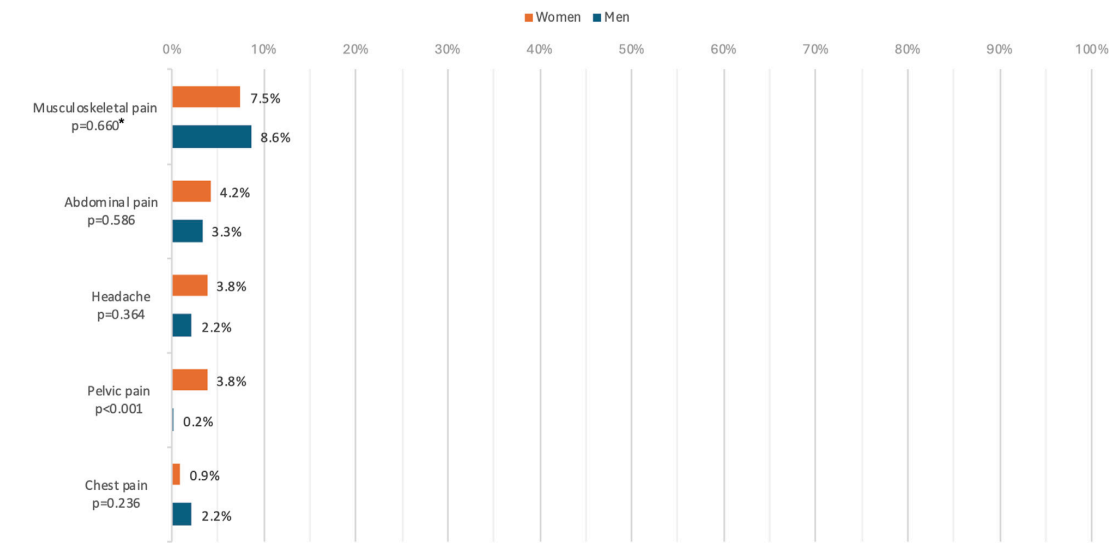

FIGURE 1 | Rates of the different types of pain by gender (Premiers Pas, France, 2019). N = 1118, p*: p-value of the chi-2 test.

socioeconomic variables (aOR = 4.85, 95% CI [1.53–13.36], p = 0.007). No associations were found between mental health and musculoskeletal pain among women.

Among men, those with sleep disorder had significantly higher odds of overall pain after controlling for socioeconomic variables (aOR = 2.80 95% CI [1.05–7.48], p = 0.040). Sleep disorder (aOR = 7.14, 95% CI [1.60–31.87], p = 0.010) and anxiety (aOR = 0.12, 95% CI [0.02–0.82], p = 0.031) were associated with musculoskeletal pain.

DISCUSSION

Main Results

Overall, clear associations between several mental health conditions and pain were revealed after controlling for SDHs. These results are consistent with the international literature [62, 72]. Similar to our study, a Swedish study revealed that a higher risk of chronic and severe pain among immigrants was significantly influenced by depression [73]. In another cohort study of Syrian refugees in Norway 12 months after their arrival in Northern Europe, poor mental health was a predictor of chronic pain at follow-up [72]. Finally, studies also support that trauma and pain, especially joint pain, are connected [74].

The rationale for including the "all pain" variable was that our study addressed the experience of pain and its relationship with mental health. The experience of pain, rather than its mechanism or cause, was the focus of this work, and this grouping made sense to us. Moreover, the inclusion of this variable increased the power of our analyses. This grouping and the results are also coherent from the perspective of screening UMs who visit clinics for pain. When UMs visit a clinic because they are experiencing pain, they should be screened for mental health problems, as they are more at risk.

Gender Stratification

We stratified the data by gender to verify whether the relationship between mental health and pain varied according to gender on the basis of the literature [36, 37]. Our results confirmed this hypothesis, as some associations remained only for women or men. Depression was associated with higher odds of overall pain among women, and sleep disorder was associated with higher odds of overall pain and musculoskeletal pain among men. The associations found in our study were in line with those described in the literature in the general population [36, 37, 75].

Surprisingly, after controlling for socioeconomic indicators, a negative association appeared for men. Anxiety was associated with lower odds of musculoskeletal pain among men. The association usually reported in the literature is that anxiety is a risk factor for musculoskeletal pain [76]. Nevertheless, among veterans, it appears that when anxiety is associated with PTSD, pain perceptions can be reduced [74]. In our study, no association between anxiety and PTSD was found, possibly because of a lack of power. Some associations, such as that between sleep disorder and musculoskeletal pain, among women have been described in the literature but were not found in our population [36, 77].

In addition to musculoskeletal pain and headaches, men had lower rates of reported pain than women did. One reason

TABLE 2 | Prevalence, univariate and multivariate analyses for pain and mental health-related variables, Premiers Pas, France, 2019.

	N	Weighted percentage	All pain					Musculoskeletal pain				
			n (%)	p-value (Chi2)	Univariate analysis (cOR)	Multivariate analysis (aOR, 95% CI) N = 953	*p*-value	n (%)	p-value (Chi2)	Univariate analysis (cOR)	Multivariate analysis (aOR, 95% CI) N = 953	*p*-value
			176/ 1,188 (14.3)					103/ 1,188 (8.3)				
Depression	**1,031**		**1,011**	**0.001**		**N = 826**		**1,011**	**0.019**			
Yes	384	29.5	**75/ 379 (18.0)**		**1.52°**	1.32, [0.66–2.88]	0.389	**45/ 379 (8.5)**		0.92	—	—
No	647	70.5	**74/ 632 (12.7)**		ref	**ref**	**ref**	**47/ 632 (9.1)**		ref	—	—
Sleep disorder	**1,188**		**1,188**	**<0.001**		**N = 959**		**1,188**	**<0.001**		**N = 959**	
Yes	176	15.0	**44/ 176 (33.0)**		**2.67*** **	**2.83*, [1.39–5.76]**	**0.040**	**26/ 176 (16.3)**		**2.67***	**2.53*, [1.20–5.33]**	**0.014**
No	1,012	85.0	**132/ 1,012 (11.0)**		**ref**	**ref**	**ref**	**77/ 1,012 (6.8)**		**ref**	**ref**	**ref**
Anxiety	**1,188**		**1,188**	**0.048**		**N = 959**		**1,188**	**<0.001**			
Yes	131	11.5	**27/ 131 (24.7)**		**2.20°**	1.59, [0.68–3.72]	0.285	**15/ 131 (8.6)**		1.05	—	—
No	1,057	88.5	**149/ 1,057 (13.0)**		**ref**	**ref**	**ref**	**88/ 1,057 (8.2)**		ref	—	—
PTSD	**1,176**		**1,150**	**0.001**				**1,150**	0.183		**N = 937**	
Yes	210	16.2	**46/ 208 (20.7)**		1.67	—	—	29/ 208 (12.7)		1.76°	1.31, [0.61–2.79]	0.489
No	966	83.8	**125/ 942 (13.5)**		ref	—	—	71/942 (7.6)		ref	ref	ref

PTSD, posttraumatic stress disorder.

p-value (Chi2): p-value using chi-square test. *OR, crude odds-ratio; aOR, adjusted odds-ratio;* p-value: °p < *0.20;* *p < *0.05;* **p < *0.01;* ***p < *0.001.*

95% CI: 95% Confidence interval. —: variable not included in the final model ref: reference category.

Multivariate analysis: Models after adjusting for mental health and socioeconomic related variables: gender, age, region of origin, time since arrival in France, reason for migration, occupation type, job in the country of origin, fluency in French, isolation, housing type, food insecurity, healthcare insurance with the Aide Médicale de l'Etat. The sample size N = XX is in bold as well as the values when a significant difference was observed.

TABLE 3 | Univariate and multivariate analyses for musculoskeletal pain, abdominal pain and headache with mental health-related variables, stratified by gender (Premiers Pas, France, 2019).

	Women							
	All pain				**Musculoskeletal pain**			
	Univariate analysis	**Multivariate analysis n = 548**			**Univariate analysis**	**Multivariate analysis n = 548**		
	OR	**ORa**	**95% CI**	***p*-value**	**OR**	**aOR**	**95% CI**	***p*-value**
Depression	**N = 362**	**N = 296**			**N = 362**	**N = 257**		
Yes	**3.38****	**4.85****	**[1.53–13.36]**	**0.007**	**4.90****	3.59°	[0.93–13.82]	0.063
No	ref	ref	ref	ref	ref	ref	ref	ref
Sleep disorder	**N = 418**	**N = 343**			**N = 418**	**N = 297**		
Yes	**4.09****	2.54°	[0.91–7.11]	0.076	**3.16***	1.70	[0.35–8.31]	0.509
No	ref	ref	ref	ref	ref	ref	ref	ref
Anxiety	**N = 418**	**N = 343**			**N = 418**	**N = 297**		
Yes	**5.72****	2.33°	[0.92–5.88]	0.074	**5.10****	2.94°	[0.87–9.92]	0.083
No	ref	ref	ref	ref	ref	ref	ref	ref
PTSD	**N = 404**	**N = 332**			**N = 404**	**N = 286**		
Yes	1.83°	1.50	[0.54–4.16]	0.440	2.42°	1.52	[0.46–5.05]	0.496
No	ref	ref	ref	ref	ref	ref	ref	ref
	Men							
	All pain				**Musculoskeletal pain**			
	Univariate analysis	**Multivariate analysis n = 548**			**Univariate analysis**	**Multivariate analysis n = 628**		
	OR	**aOR**	**95% CI**	***p*-value**		**aOR**	**95% CI**	***p*-value**
Depression	**N = 648**				**N = 648**	**N = 533**		
Yes	1.06	—	—	—	0.42°	0.28°	[0.05–1.47]	0.131
No	ref	—	—	—	ref	ref	ref	ref
Sleep disorder	**N = 767**	**N = 616**			**N = 767**	**N = 616**		
Yes	4.05**	**2.80***	**[1.05–7.48]**	**0.040**	2.57°	**7.14***	**[1.60–31.87]**	**0.010**
No	ref	ref	ref	ref	ref	ref	ref	ref
Anxiety	**N = 767**				**N = 767**	**N = 616**		
Yes	1.53	**—**	**—**	**—**	0.35°	**0.12***	**[0.02–0.82]**	**0.031**
No	ref	—	—	—	ref	ref	ref	ref
PTSD	**N = 743**				**N = 743**			
Yes	1.64	—	—	—	1.57	—	—	—
No	ref	ref	ref	ref	ref	ref	ref	ref

PTSD, Posttraumatic stress disorder p*-value (Chi2):* p*-value using chi-square test.*

OR, crude odds-ratio; aOR, adjusted odds-ratio; p*-value: °*p *< 0.20; **p *< 0.05; ***p *< 0.01; ****p *< 0.001.*

95% CI, 95% Confidence interval. —: variable not included in the final model ref: reference category.

Multivariate analysis: Models after adjusting for mental health and socioeconomic related variables: gender, age, region of origin, time since arrival in France, reason for migration, occupation type, job in the country of origin, fluency in French, isolation, housing type, food insecurity, healthcare insurance with the Aide Médicale de l'Etat. The sample size N = XX is in bold as well as the values when a significant difference was observed.

for this result could be the variation in pain verbalization depending on gender. Pain may be less easily expressed by men not because of biological differences but because of gender performativity [78]. Moreover, the verbalization of anxiety also appears to be gender biased. Male participants appear to be less inclined to express their anxiety but would be more comfortable doing so in certain contexts, such as in online forums or to women in their close circle (to their spouse, mother, etc.) [79].

Social Determinants of Health

In our study, the multivariate models were adjusted for SDHs. The role of SDHs in pain has been described, and migration seems to play a role [39, 58, 80, 81]. However, how migration affects the association between pain and mental health is unclear. The allostatic load theory explains how migration-related exposures play a role in the accumulation of somatic damage and increase the risk of several diseases [82, 83]. Migration-related stressors such as poor safety, a poor physical environment or poor access to healthcare are associated with chronic pain among immigrants [72].

Mutual Maintenance

Our results highlight the importance of identifying when pain is experienced by UMs not only because of its prevalence but also because it can be associated with mental health conditions. Our study was observational, so a causal pathway cannot be established between pain and mental health. However, it seems that they can both maintain each other mutually. The "mutual maintenance theory" suggests that chronic pain may exacerbate and maintain PTSD, whereas PTSD may exacerbate and maintain chronic pain [84]. This mutual maintenance occurs through specific mechanisms, such as reminders of trauma, depression and reduced activity levels. This

relationship seems to extend further and has an impact on treatment for both mental health conditions and pain. Physical pain may interfere with a patient's ability to respond to treatment, and the presence of a mental health condition could also interfere with effective pain management [74].

Perspectives

The pain expressed by the participants was self-assessed, and the causes of pain were not explored. Several underlying hypotheses may explain the cause of pain. The pain experienced could be linked to an unperceived or undiagnosed health problem, and reduced access to healthcare may increase the risk of delayed diagnosis or even non-diagnosis of the cause of pain [26]. In cases where pain can be explained by a physical or organic cause, whether a mental health problem exists must still be investigated, as it may accompany or even maintain the pain [84]. There are situations where pain cannot be medically explained and may either be part of a psychiatric syndrome or remain medically unexplained [85]. Regardless of the cause of the pain, its treatment can be challenging. Few studies have evaluated the impact of pain treatment on reported pain and mental health among immigrants [86, 87]. A study conducted in Norway among refugees from Syria aimed to assess two different interventions to reduce pain and posttraumatic symptoms: the "Physiotherapy Activity a pain Awareness Intervention" (PAAI), which consists of a combination of psychomotor and general physiotherapy, and the "Teaching Recovery Technique" (TRT), which involves cognitive behavioral therapy [86]. The PAAI had no effect on either chronic pain or mental health symptoms after 8 and 12 weeks. One reason that the authors proposed was that the intervention was not sufficiently adapted for the participants and their situations. A large proportion of participants in the intervention group could not attend the sessions. The qualitative analyses revealed that it was difficult to combine the sessions with other activities of daily life, thereby potentially contributing to additional stress [88]. The TRT significantly improved general mental health but did not help reduce chronic pain [89].

Strengths

The key strength of this study lies in its recruitment of a diverse population and its focus on mental health issues within this vulnerable group. Moreover, to our knowledge, our study is the first to focus on UMs not exclusively recruited in healthcare settings in France. Very little is known in terms of the public health of this population. Thus, this study is highly important, as it provides insights into this hard-to-reach and hard-to-study population. One of the factors that enabled recruitment was the use of diverse languages and the inclusion of numerous sites outside care settings. Even though the sample size was not large, the results of this study are still substantial if we consider that this population is difficult to approach, especially outside healthcare settings. The results presented in this article are the first to document the relationship between pain and mental health in this population.

Limitations

Unfortunately, the lack of power did not allow us to further explore the implications of PTSD and depression on the different types of reported pain. Additionally, the small sample size of women did not allow us to explore associations between mental health and musculoskeletal pain. For some results, such as the association between sleep disorder and musculoskeletal pain, the CIs were large. Thus, even if the value was significant, the uncertainty was high, and the estimate was less precise because of the size of the 95% CI. A larger sample size might have reduced this uncertainty.

Furthermore, our study does not represent all UMs across France because recruitment took place in two regions. However, our results are representative, as UMs are geographically concentrated in urban regions, particularly in the Parisian region [90]. Future research with larger samples should thoroughly investigate immigration-related factors, including a wide range of sociodemographic and health-related factors that may contribute to health status among immigrants.

Pain could have been studied in more detail, for example, by examining the intensity of the pain or by asking how the pain affected the participants' lives. Self-assessment of subjective health, such as pain, is influenced by culture, as expectations and norms for a given health dimension can be very heterogeneous [91]. As a result, the subjective self-assessment of pain in this study did not allow us to compare subjective health states between individuals, especially to compare samples from different countries or regions. This can lead to serious misunderstandings about the health status of populations, particularly those that are the most economically disadvantaged. This bias, known as the "DIF" (Differential Item Functioning) effect, can be corrected via more advanced methods, such as "Anchoring Vignettes," which can be used to detect and correct possible comparability problems. This method was not used in our study, as the study design was not initially intended to study pain in depth. Future studies could be carried out using this type of method to better study pain.

The PHQ-9 and PC-PTD-5 were used in different languages. In this study, interviews were conducted in French (75%), Arabic (8%), English (7%), Spanish (4%), Russian (2%), and Portuguese (2%), accounting for 99% of the questionnaires collected [19]. Although the PHQ-9 has been validated in these languages, this was not the case for the PC-PTSD-5 [92–96]. The PHQ-9 has been validated in French, Arabic, English, Spanish, Russian and Portuguese. The PC-PTSD-5 has only been validated in English but not in French or other languages [70]. For those languages, no suitable and validated scale to measure PTSD symptoms was found in the literature. Thus, PTSD symptoms may have been over- or underestimated in our study, leading to measurement bias for this indicator.

Since our study did not aim to establish causality, the lack of specific time frames does not undermine the relevance of our findings. Moreover, recall bias would have been a challenge. The PHQ-9 and PC-PTSD-5 were administered to all individuals, and anxiety and sleep disorders can rarely be ignored, as these symptoms often have a major impact on quality of life. Thus, the risk of over- or underestimating the prevalence of mental

health conditions in our study was reduced. Moreover, since our study was essentially conducted outside care settings, the risk of overestimating mental health conditions if the participants were seeking health services also remained low.

Conclusion

Our study confirms the link between mental health and perceived pain in this large sample of UMs in France. These results could have a direct impact on the care provided to UMs. This study encourages practitioners to systematically ask questions pertaining to mental health when a patient is experiencing pain to implement targeted interventions, especially when the pain remains medically unexplained. The results call for more specific studies on the associations between certain types of pain and certain mental disorders and the development of treatment algorithms that consider the social and psychological context of UMs.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors upon request.

ETHICS STATEMENT

This study involving human participants was reviewed and approved by the Institute for Research and Documentation in Health Economics. Informed consent for participation was obtained from each participant in accordance with the national legislation and the institutional requirements. The study was conducted under the control of the CNIL (Commission Nationale de l'Informatique et des Libertés, registration number: 2203002 v 0).

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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CONFLICT OF INTEREST

The authors declare that they do not have any conflicts of interest.

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C. Conclusion

Our study confirms the link between mental health and perceived pain in this large sample of UMs in France. These results could have a direct impact on the care provided to UMs. This study encourages practitioners to systematically ask questions pertaining to mental health when a patient is experiencing pain to implement targeted interventions, especially when the pain remains medically unexplained. The results call for more specific studies on the associations between certain types of pain and certain mental disorders and the development of treatment algorithms that consider the social and psychological context of UMs.

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General discussion

A. Summary of results

The main objective of our work was to explore the health status and the preventive aspects of health among UMs, and to analyze the influence od SDoH on those outcomes.

1. Health status of UMs

Musculoskeletal, mental and digestive conditions were among the most frequent conditions and symptoms presented by UMs (233,280,320). More than a quarter of participants reported a mental health condition. Depression affected one third of UMs, poor perceived health one quarter, and many experienced anxiety and sleep disorder (319). Dental pain and skin conditions were frequently reported which aligns with the literature (181,233,234,279–283,361,362). A significant proportion of women reported recent pregnancies. Consistent with the literature, SDoH strongly influenced health outcomes : food insecurity and unstable housing were linked to worse health such as depression and asthma (181,187,194,233,308). In contrast, social support and employment were protective factors. Healthcare insurance and length of residence in France were not associated with health outcomes. Compared to DMs, UMs had worse mental health and self-perceived health, but similar or slightly lower risks of diabetes and HBP.

2. Access to preventive health and substance use

Half to two-thirds of UMs received check-ups or screenings since arrival, and only a third received vaccinations. Healthcare insurance and a longer length of residence in France were associated with higher use of preventive healthcare services. Sub-Saharan Africans and women (especially pregnant women) had better access, possibly due to targeted HIV prevention and prenatal care. Tobacco and unhealthy alcohol use among UMs was notable but lower than the general French population. North African UMs and men had higher risks of smoking and alcohol misuse. UMs smoked more and had lower cervical screening rates than DMs.

3. Pain as a symptom of mental health among UMs

Pain was significantly associated with poor mental health after adjusting for SDoH. The experience of pain, rather than its mechanism or cause, was the focus of this work. Since pain is a common complaint in clinical settings this thesis argues that it may serve as a valuable indicator for screening UMs for mental health conditions.

B. Interpretations and lessons learned

1. The influence of social determinants of health and length of residence on health outcomes and use of preventive healthcare services

a. The negative impact of poor living conditions

Overall, our results showed the significant impact of SDoH on health outcomes, which was consistent with the literature (67,162,171,177,189,195,196,210,212,215,217,224–231,236,241,242,253,254,257,258,262,276,425–444). Poor living conditions were identified as risk factors for negative health outcomes.

Limited access to legal recognition for UMs bars access to the declared workforce as well as access to state subsidized social housing (183–185). Restricted to undeclared or falsely declared poorly paid jobs with long working hours, UMs are exposed to various occupational risks. Lacking the right to remain has an impact on health since it becomes a source of psychosocial stress and increases isolation and social exclusion (194,203–206). The higher risk of tobacco use among UMs compared to DMs could be, at least partially, caused by the psychosocial stress.

UMs often face barriers to healthcare and are therefore exposed to higher risks of unmet healthcare needs, delays in access to care, including emergency care (201,202,308,309). In addition to a worse access to healthcare insurance, self-isolation, reluctance to seek help, and renouncing to care for fear of being confronted by law enforcement agencies are cognitive-behavioral adaptations associated in the literature with lower use of healthcare services and negative health outcomes (176,207). Identifying the barriers to accessing healthcare can allow for a better understanding on the reasons why UMs women were less often up to date for cervical cancer screening when compared to DMs women.

The UMs population in itself is heterogeneous. The Premiers Pas study showed that a little more than half of UMs living in France entered without visa (31). The latter seemed to be more exposed to precarious living conditions than those who arrive documented and are less often beneficiaries of healthcare insurance when compared to those who entered with a visa (31). In our study UMs who arrived without a visa presented symptoms of depression more often than UMs who entered documented. Although results were not significant in multivariate analyses, those who arrived without a visa had a worse self-perceived health in comparative analyses. Besides tuberculosis screening, no difference was found in terms of preventive healthcare services according to how UMs entered in France. UMs who used to have a visa may have been in France for a longer time, be more integrated and therefore have a better access to the workforce and healthcare insurance. The literature confirms that a longer length of residence is correlated to a better access to healthcare insurance (307). To this effect, the influence of SDoH could vary according to the profiles of the UMs and those who entered illegally could have higher risks of negative health outcomes.

b. Better access to preventive healthcare services with healthcare insurance and time spent in France

Our results showed that access to preventive healthcare was better for UMs who have a healthcare insurance (Aide Médicale de l'État, State Medical Aid). France's national and State funded healthcare insurance includes coverage for UMs and our results argue in favor of removing barriers to the opening of rights and renewals (392). Improving access to healthcare would not only directly benefit the health of UMs but also seems important in terms of wider public health strategies and good governance of healthcare system costs. In terms of public health, access to prevention is essential to reduce the risk of contracting a disease and complications at advanced stages of the disease. From a macro-economic point of view, reducing access to healthcare or withdrawing healthcare insurance for UMs can have an impact on healthcare system costs such as increased reliance on emergency services as their only available option (393–395).

Use of preventive healthcare services increased with time spent in France. Whether with or without healthcare coverage, access to preventive healthcare was getting better with time spent

in France. This observation could be explained by a better knowledge of the host country, less isolation, and therefore a better familiarity and understanding of the healthcare system with time. Evidence shows that overall health literacy of the host country healthcare system is low among migrants compared to non-migrants, and even lower among UMs (445). Improving health literacy has positive effects on health outcomes (446–449). Health literacy was not a variable that we could have included in our models because it was not part of the survey. We can hypothesize that health literacy was higher with time spent in France and that it could partially explain increased access to preventive healthcare services. Without healthcare insurance, access to preventive healthcare services is possible in France via structures operating in parallel of the conventional healthcare system. These include NGOs, free screening facilities for infectious diseases (HIV and hepatitis), free vaccination or tuberculosis centers. Our results showed that UMs without healthcare insurance had less access to preventive healthcare, which underlines that these structures are not sufficient to ensure this mission and that access to healthcare insurance for UMs a determining factor.

2. UMs presented worse health outcomes and less access to preventive healthcare when compared with DMs

UMs presented higher risks of depression, worse perceived health, higher risks of smoking as well as less access to cervical cancer screening when compared with DMs.

The interpretation of these results is indirect because the models comparing UMs with DMs were not adjusted for living conditions and length of residence. Other than age, gender, job status and region of origin, the influence of SDoH attributed to living conditions could not be characterized in our study because the multivariate models comparing UMs and DMs were not adjusted for these variables. The main reason was that they were not included in the EHIS study. Similar to living conditions, it was not possible to include the variable related to length of residence in the multivariate models because its distribution was too different between the two populations.

We hypothesize that the higher risks in terms of mental health, worse perceived health status and tobacco use among UMs compared to DMs can be attributable to the significant influence of poor living conditions, lack of social support, and psychosocial stress among UMs (186,192,193,203–206).

The literature shows the that lack of legal status can be a source of isolation and contributes to degraded health outcomes (203,204,208). Illegal status in itself does not explain the worse health outcomes but is associated with deprived rights such as access to social housing and access to the workforce which, in turn, contributes to financial and food insecurity. Also, lacking the right to remain is a source of psychosocial stress associated with poorer physical and mental health (419,420). All these factors could not be measured in our study but, based on the literature, they can explain the worse mental health, the poorer self-perceived health and the higher use of tobacco among UMs compared to DMs.

In addition to legal status, contrasting health outcomes between UMs and DMs can be explained by increased integration in the host country over time. We did not control our models with length of residence, but DMs had a higher length of residence than UMs. With time spent in France, rates of isolation and exclusion are reduceds while access to housing, work, healthcare and health literacy increase (37).

The lower access to cervical cancer screening among UMs women could be attributed to the limited access to healthcare coverage compared to DMs, less literacy of the healthcare system and social isolation (409,410). The comparison between UMs and DMs in our study is open to debate as we categorized UMs who had not been screened since arrival with those who had been screened but were not up to date.

Although UMs with healthcare insurance had better access to preventive healthcare services, no difference in health status was observed depending on whether or not they had health coverage. Rather than health insurance, it was living conditions that had a greater impact on the health of UMs. As a structural determinant of health, living conditions can be addressed by public policies, such as immigration law, employment regulations, housing and public health governance strategies (76,160,163,165,170). In addition to improving access to healthcare insurance, which remains an essential element, improving living conditions is likely to have a greater impact on the health status of UMs. The deterioration of living conditions among UMs is often a consequence of the lack of legal status. Lack of access to the labor market leads some to take undeclared and underpaid jobs with heavy workloads that do not comply with regulations. UMs are therefore over exposed to workplace accidents or work-related health problems. Unpaid overtime and earning below regulatory minimum wage income over-exposes UMs to food insecurity which directly harms cognitive and physical health. The lack of legal status also bars UMs from access to State subsidized housing. Allowing UMs to legally participate in the

workforce would reduce food insecurity by means of stable and controlled income. Access to social housing would reduce psychosocial stress thereby limiting social isolation and improving integration. Improving or relaxing policies on access to residence permits for UMs could improve health outcomes such as better mental health and a better perceived state of health (217,225,231,450).

3. Different health outcomes between UMs and DMs bring to light the limits of health theories of migration

The healthy migrant effect (HME) and exhausted migrant effect (EME) theories are not supported and are even in conflict with our results. If these theories were applicable, UMs should have shown a better state of health than DMs by virtue of shorter residence time. In fact, according to the HME, newly arrived migrants have a better state of health because they benefited from selection upon migration. Then, according to the EME, migrants' health deteriorates over time. According to these theories, UMs should have a better health status. However, this is not what we observed, as UMs with a shorter duration of residence already have a higher risk of depression and a worse perceived state of health.

The unhealthy assimilation effect described in the literature for tobacco use is also not verified among UMs (451). Regarding tobacco use, the literature describes an increased risk of smoking with time spent in France (412,413). Here again, tobacco consumption among UMs should be lower than among DMs. However, the opposite is found.

How can these contradictions be explained?

Factors influencing the health outcomes of UMs seem outside the scope of theories on migrant's health. One explanation could be the important impact of living conditions on their health (181,186,187,194,203–205,318).

Differences in health status between UMs and DMs seem to be more a reflection of differences in living conditions than legal status (180,183,203,205). Legal status should therefore be considered as a proxy for living conditions. For UMs, lack of legal status is the tip of the iceberg for other detrimental circumstances including degraded living conditions, lack of rights, isolation and psychosocial stress. Lack of legal status could induce persistent stress partly due to the fear

of deportation (203,204,208). The worse mental health, poorer self-perceived health, and higher tobacco use among UMs compared to DMs could then be explained by those factors (183,205). We suggest that the impact of degraded living conditions is so strong that it competes with the health theories on migrant health such as HME and EME.

In the long term, the constant fear and stress can have biological impact. Some authors explain that stress can induce a physiological wear and tear through the adaptation of the stress response system (452,453). This biological embodiment of the social environment is refered to as the allostatic load. Although this theory is recent and the amount of research remains limited, it can provide perspectives on elements that may influence the health of UMs who are particularly exposed to environmental stress.

Health migration theories could be more or less conflicted depending on UM's profile and living conditions. Those who arrived legally and lost their legal status seem less exposed to precarious living and could be less isolated (31). Those who arrived undocumented are less often beneficiaries of healthcare insurance than those who entered with a visa (31). The weight of living conditions on health outcomes could then be different depending on UMs profile. UMs who arrived documented may be closer to the DMs population in terms of health status with time spent in France as one in five DMs were once UMs during their stay (30).

Finally, among UMs we observed that vaccination rates increased with time spent in France. Literature on migrants shows an unhealthy assimilation effect with higher vaccine hesitancy and less vaccination take-up among migrant with increased time spent in France (145–147,401). However, this effect is usually observed for migrants with longer lengths of residence in France when compared to the length of residence in the sample of UMs in PPS. It is very likely that the lengths of residence were not long enough in our sample to observe this effect.

As one type of acculturation effect, the unhealthy assimilation effect is linked to integration. This effect could also be less pronounced among UMs because the lack of legal status limits their integration and opportunities for cultural changes, at least at the early stages of migration (36). At the same time, better knowledge of the host country and healthcare system with time can explain the increased access to vaccination and to the other preventive healthcare services (445). The positive effect of length of residence has already been described in the general migrant population for health check-ups, access to vaccinations and cancer screening (404).

Our hypothesizes are that in the first years after arrival better integration acts like a positive factor facilitating better knowledge of the healthcare system and use of healthcare services. Then, as the literature suggests, with time spent in France integration can act as a negative factor, driving to the adherence to negative behaviors and an unhealthy assimilation effect. We studied vaccinations but other health outcomes such as healthy diet should be examined in future research.

4. Evidence on NCDs among UMs in France

a. NCDs and chronic diseases

This is the first study to provide a comprehensive overview of non-communicable diseases (NCDs) in a population of UMs recruited not exclusively in healthcare settings.

Comparisons with DMs suggest that the development of some NCDs are strongly influenced by environmental factors and time spent in France. Our results showed that the risk of asthma was significantly lower for UMs and increased with the time spent in France. No significant results were observed for HBP and diabetes but trends toward lesser risk were observed when compared to DMs. The lower length of residence of UMs in France could at least partially explain the decreased risk among UMs. According to some authors, living conditions and environment, in the context of migration, play a role in the development of allergic asthma (321). The increased risk of asthma with time spent in France could be linked to an allergy "catch-up" with the immune system being reprogrammed in response to a new environment when exposure is long enough (322).

The trend toward lower risks of diabetes and HBP for UMs (differences not significant) could also be explained by a shorter length of residence. The literature explains that time spent in high-income countries by migrants arriving from middle or low-income countries is associated with an increased risk of diabetes and HBP (238,323,324). The causal pathways are multifactorial and include socioeconomic circumstances (income, availability of healthy food, etc.), behavioral factors (e.g., physical activity, dietary changes), access to healthcare (particularly preventive care), and physical and psychosocial stress (social cohesion, neighborhood safety, discrimination) (325,326). Also, less acculturation, linked to a shorter length of stay, is part of the behavioral

factors. Finally, this lower risk could be linked to a better diagnosis of these diseases for DMs, benefiting from a better healthcare access and knowledge of the healthcare system.

b. High rates of poor mental health and poor perceived health: a concerning factor

UMs presented a poor mental health with high rates of depression, PTSD, anxiety, sleep disorder and poor self-perceived health (454). Poor self-perceived health can either reflect a poor physical state, emotional state, or the presence of biomedical signs and symptoms (299,333–335). Above all, poorer self-perceived health observed among UMs is a major concern as the literature shows that this outcome is associated with high rates of mortality (299,334,335).

The literature shows that lack of health insurance leads to high rates of unmet healthcare needs and amplifies rates of poor perceived heath among UMs (338). In the presence of healthcare coverage, poor perceived health is associated with higher rates of healthcare use as it drives people to seek care (339). In PPS, among eligible UMs, half had access to healthcare insurance coverage in France (37). Barriers to healthcare, combined with high rates of poor perceived health are linked to an alarmingly higher risk of mortality.

In our study and in the literature, depression and perceived health are associated with poor living conditions and administrative status (231,338,340,450). As discussed above, living conditions of UMs can be addressed by public policies. Political decisions granting access to the workforce, stabilizing income, opening eligibility to State subsidized housing, and granting residency permits would have a bigger impact on health outcomes than healthcare insurance alone.

c. Associations between mental health and pain

Our study revealed links between mental health and pain regardless of SDoH. The expression of pain, musculoskeletal pain in particular, in primary care is common among UMs and may reflect difficult life circumstances such as physically straining, repetitive muscle movements or hazardous working conditions.

Since pain was declarative in the survey, it could be related to undiagnosed illnesses, somatic pain, or unrelated to a condition. In any case, the relationship we observe between mental health

and pain does not allow us to determine the cause of the pain, but it does demonstrate the how mental health and pain maintain each other which is consistent with the literature (88).

The relevancy of our results for practitioners receiving UMs in consultation and public policies more broadly

First, our results encourage practitioners to systematically screen for mental health disorders among UMs who consult for pain. The use of a validated mental health screening tools such as PHQ-9 can be a support (455). However, the healthcare pathway for pain is challenging. If UMs need to consult a doctor for pain but do not benefit from healthcare insurance, they can access care free of cost in facilities operating outside the regular healthcare system (Permanence d'acces aux soins de santé, NGOs such as Médecins du Monde, for example) (390,391). UMs with healthcare insurance can consult a general practitioner as long as access is not hindered by refusal of care or or prevented by language barriers or unfamiliarity with the health system (456,457). Once a mental health problem has been identified by a healthcare professional there remains the work of mapping local resources available to support UMs as access to mental health professionals is often limited and conditional to active healthcare coverage.

Secondly, for those who have access to healthcare, pain management initially involves identifying the cause and then treating it alongside pain relief. When pain is linked to an underlying condition, treating that condition is the main focus of care (this includes mental health issues such as depression). However, when pain is not related to an underlying condition, it can be triggered by poor living conditions. The presence of musculoskeletal pain among UMs individuals, who are predominantly young, suggests that living conditions, particularly physically demanding working conditions, influence the onset and persistence of pain (189,270,272,273,439,458–460). Migration-related stressors such as poor safety, poor physical environment, or poor access to healthcare are associated with chronic pain among migrants (76). In this case, the potential impact of healthcare professionals is limited since they have little influence on improving living conditions. As discussed above, improvements in living conditions are governed by public policy, and it is these policies that have the greatest impact on health (160). Thus, improving pain and mental health requires more macro-level action at the political level.

C. Methodological discussion

Our study presented several strengths and several limitations.

1. Sample of UMs and comparisons with DMs

The primary strength of this study was that it was the first to describe the health of UMs in France based on a representative sample of UMs not exclusively recruited in healthcare facilities. The representativeness of this population was ensured by several factors including the two levels of selection described in the methods and the fact that a large majority of AME beneficiaries live in the Bordeaux and Paris regions (35,38,290,291). Since UMs living outside of those two regions have not been included, it is possible that some aspect of their health may not have been captured.

Another strength of this study is that we were able to compare the UM sample with a sample of DMs representative of the general population. The merging of the two databases made it possible to compare outcomes measured using validated tools such as the use of the PHQ-9 for depression or perceived health status using the MEHM (461–463). However, we regret not being able to include variables related to living conditions in the models for the comparison between UMs and DMs. Thus, the interpretation of the differences was indirect. At the same time, the inclusion of variables such as housing or health insurance, to which the vast majority of DMs have access, would also have been questionable due to the large differences in distribution.

Finally, the power of our study did not allow us to clarify certain associations due to the small sample size. For example, it is possible that associations between healthcare coverage and other prevention-related variables besides 'check-up' exist but that the power of the models did not allow to be revealed. Yet, the sample can be considered relatively large given that this is a hard-to-reach population (464).

2. Measures

The use of validated scores to describe the health status of UMs, such as PC-PTSD-5, AUDITc, PHQ-9 or MEHM, added strength to the study (385,461–463,465). Most of the scores have been validated in several languages (328–332,466). However, several health outcomes were collected using single questions and without the use of scores. Thus, declarative bias should be considered as well as the risk of underestimating or overestimating the prevalence of reported symptoms or conditions. For

conditions requiring diagnosis by a healthcare professional, such as diabetes, high blood pressure, or asthma, rates are likely to be underestimated since access to healthcare for UMs is limited.

3. Selection bias in the interpretation of length of residence and healthcare insurance access effects

Interpreting the effects of length of stay is complex as it may partly reflect a "return bias." The categories of UMs with longer periods of residence in France may be biased because they only reflect those who have remained in France without a residence permit. Over time, some of the UMs may have obtained legal status and become DMs. However, some of the UMs may also have decided to leave, either to another country or to return to their country of origin. Although the reasons vary, departures could be due to lack of security which does not improve over time and pushes UMs to leave. Another motivating factor for departure could be poor health prompting a return to the country of origin to be with relatives.

UMs with a longer length of residence were not necessarily undocumented since arrival in France and may have switched status several times. One in five DMs were once UMs during their stay which illustrates how the administrative status is a dynamic process (30). Interpreting comparisons between UMs and DMs is complex and could be nuanced according to the profile of individuals. As described above, UMs who entered without visa seem to present worse health outcomes (depression and worse perceived health) and are more exposed to difficult living conditions when compared to UMs who arrived legally and lost their legal status (31). Future studies should focus on gaining insight on UMs pathways after arrival in France to better understand its impact on health outcomes.

The higher use of preventive healthcare services by UMs with health insurance may be a positive effect of having health insurance. However, it may also be linked to individual health behaviors. Those who are most concerned about their health will tend to seek care and thus increase their chances of benefiting from healthcare insurance. This can be seen in particular in the greater use of preventive healthcare services by UMs who mention health as one of the reasons for migrating. Structures offering healthcare or assistance to migrants usually offer guidance and information to apply to healthcare insurance. Those for whom health is a concern could have then higher chances of having healthcare insurance and have information on preventive healthcare services because they seek care.

Those for whom health is not a concern would tend to allocate less attention to their health and may consult healthcare professionals more for curative healthcare and less for preventive healthcare.

D. Perspectives and future research directions

1. Perspectives

This study underscores the significant impact of living conditions on UM's health. Living conditions can be addressed and improved through targeted public policies. Policies that promote migrants' rights, social inclusion, and legalization, are beneficial from a public health perspective (169,170). In today's increasingly hostile and polarizing political climate toward UMs, this research provides objective, evidence-based insights (467). Health-related motives for migration were relatively low and did not explain health status to any great extent. This dispels common misconceptions and fear-mongering claims that health-related motives are a major driver of migration.

Compared to DMs of the same age, gender, region of origin, and employment status, UMs were generally younger and experienced fewer chronic conditions. However, they often endure physically demanding, hazardous and low-status occupations that are bereft by the general population (56,57,178,189,269–271,425,439,468,469). Despite their contribution to the labor force, they remain socially marginalized and exposed to high levels of psychosocial stress.

While public policy is a strong structural determinant of health with the most powerful influence on health outcomes, the healthcare system also plays a critical role (160). The Aide Médicale de l'État healthcare insurance program, although frequently targeted in political debates, is a cost-effective way to ensure basic healthcare coverage (74,470). From both an economic and a public health perspective, our study showed that Aide Médicale de l'État facilitates access to preventive healthcare services and should be protected (467).

Ensuring access to healthcare for all regardless of legal status is not only a matter of social justice but also a cornerstone of an effective and inclusive public health system. Investing in the health of the most vulnerable strengthens the health of society as a whole. To improve health outcomes, policies must go beyond the health sector. Housing, employment rights, education access, and

legal status are powerful levels for health equity. Public policies that address these upstream determinants are essential for reducing health disparities and protecting the well-being of vulnerable populations like UMs.

2. Future research direction

In terms of research, the results of this study open up several avenues. Further studies could enable a more robust assessment of known theories on migrant health.

Firstly, a study tracking the health status of UMs over time would make it possible to assess changes in health status according to length of residence and changes in variables such as access to work, access to better housing, and legalization of status, as has been done in Switzerland (217,225,231).

In addition, a study with a larger sample size could compare legally and illegally entered UMs, who more often face more difficult living conditions. This comparison could help to refine the results and identify the profiles of the most vulnerable individuals.

Finally, comparisons between UMs and DMs could be refined to include adjustments for variables such as living conditions and more comparable health outcomes.

Studies conducted among UMs and migrants in general must be carried out with particular care. This is a hard-to-reach population that is difficult to include in studies (464). In addition, UMs are part of a vulnerable population that is not always treated with well-intentioned considerations. These studies must be subject to prior scrutiny to ensure their ethical nature. They must be disseminated with caution to avoid any misuse.

CONCLUSION

The contribution of this work was first to provide evidence on UMs health in France, based on a representative sample. It provided evidence that living conditions play a central role in UMs health. The effects of migration theories commonly described in the literature among migrants were not clearly observed. Comparing UMs with DMs provided elements to discuss the effect of poorer living conditions on UM's health and the application of migration health theories.

Our findings highlight the critical role of public policies in addressing modifiable determinants impacting UMs health. Policies that promote social inclusion, legal regularization, and access to essential services can improve health outcomes not only for UMs. In this context, the healthcare insurance program for UMs stands out as a key mechanism for facilitating access to preventive healthcare. Although our results showed a limited impact of the healthcare insurance on overall health outcomes, the insurance healthcare's cost-effectiveness and public health value lies in preventing more serious and costly future interventions. Maintaining and strengthening such programs is essential for building an equitable healthcare system.

While future research could be built on this work, due to the ethical sensitivities involved in researching a hard-to-reach and often stigmatized population, these studies must prioritize methodological rigor and ethical safeguards. Dissemination should be handled with care to ensure findings are not misused but instead serve to inform evidence-based policymaking.

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Publications scientifiques / Scientific value

A. Thesis articles

1. Published article

Moussaoui S, Vignier N, Guillaume S, Jusot F, Marsaudon A, Wittwer J, Dourgnon P. Pain as a Symptom of Mental Health Conditions Among Undocumented Migrants in France: Results From a Cross-Sectional Study. Int J Public Health. 2025 Jan 6;69:1607254.

2. Submitted articles

To the BMC Public Health journal

Moussaoui S , Vignier N, Guillaume S, Jusot F, Marsaudon A, Wittwer J, Dourgnon P. How do living conditions and legal status affect the health of undocumented migrants in France?

To the Journal of Community Health – ***to be submitted***

Moussaoui S , Vignier N, Guillaume S, Jusot F, Marsaudon A, Wittwer J, Dourgnon P. Understanding access to prevention and substance use among undocumented migrants in France : the weight of social determinants of health

B. Other papers published as first author or co-author

2025

1) Richard B* & **Moussaoui S*,** Bonello K, Skendi M, Duguet T, Figoni H, Ibanez G. Assessing the acceptability to general practitioners of the French College of General Medicine's recommendations on considering patients' social situations: a Delphi study. BMJ Open. 2024 Dec 15;14(12):e084837. ***Co-first**

2) **Moussaoui S.,** Suthesapalan M., Thomas M., Baunot N., Dommergues M., Saldhana Gomes C., Ibanez G. Validation d'une question unique dans le dépistage de symptômes dépressifs et d'une altération de la qualité de vie au cours de la grossesse. *exercer* 2025;210:52-9.

3) **Moussaoui S.,** Lehembre E., Rozes M. Dispositif d'aller-vers pour améliorer la couverture vaccinale contre le covid-19 : expérimentation au sein d'une commune marquée par les inégalités sociale de santé. **Accepted for publication, expected for 2025**

2024

4) Kerebel Y, Duguet T, Kapassi A, Figoni H, Colas-Charlap AL, Pariente L, Perroteau F, **Moussaoui S,** Bonello K, Chastang J. How do patients perceive the retirement of their general practitioner? A qualitative interview study in France. BMJ Open. 2024;14(6):e078166.

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5) Cailhol J., Vignier N., Vandentorren S., **Moussaoui S.,** Feral-Pierssens A-L. Political bargaining over undocumented immigrant's health in France: time for a call for reason. The Lancet. December 2023

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8) Vignier, N., **Moussaoui, S**., Marsaudon, A., Wittwer, J., Jusot, F., & Dourgnon, P. (2022). Burden of infectious diseases among undocumented migrants in France: Results of the Premiers Pas survey. *Frontiers in public health*, *10*, 934050. https://doi.org/10.3389/fpubh.2022.934050

9) Skendi, M., Liard, R., Besacier, C., Correas, J.-M., **Moussaoui S.,** Chastang, J., et al. Intrauterine Pregnancy Detection and Gestational Age Assessment During Early Pregnancy by a Handheld Point-Of-Care Ultrasound Device Compared to a High-End Ultrasound System. An Accuracy and Reliability Study. *POCUS Journal*. 2022; *7*(2), 225–231.

10) Bruel S., **Moussaoui S.** Effets d'une formation courte, contextualisée et en binôme, sur les pratiques des gestes gynécologiques des internes et de leurs maîtres de stage. Exercer. 2022;179:37-8.

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11) **Moussaoui, S.,** Aurousseau, A. M., Nappez, S., Cornaglia, J., Delobre, G., Blanchi, S., Luan, L., Vandentorren, S., Bouchaud, O., Launay, O., Nutte, L., Liard, R., Skendi, M., Mechain, M., & Vignier, N. (2021). Immunization Catch-Up for Newly Arrived Migrants in France: A Cross-Sectional Study among French General Practitioners. *Vaccines*, *9*(6), 681. https://doi.org/10.3390/vaccines9060681

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13) **Moussaoui S.,** Bruel S. Le dépistage du cancer du col de l'utérus : inégalité de dépistage, inégalité de pratique médicale ? Exercer. 2021;170:68-9.

C. Poster and oral presentations at international conferences and seminars

1. Oral presentations

1) **Moussaoui S** & Chavannes B. Evaluation of a multi-professional training program for general medicine interns at Santé Sorbonne University in 2023: an interventional study (Évaluation

d’une formation à la pluri-professionnalité pour les internes de médecine générale de Santé Sorbonne Université en 2023 : une étude interventionnelle). International Francophone Conference on Science Education for Health (Congrès International francophone de pédagogie en sciences pour la santé), may 2025, Orléans, France.

2) **Moussaoui S** & Archer E. Evolution of the methodological quality of quantitative observational general medicine theses defended between 2021 and 2023 at Sorbonne University (Évolution de la qualité méthodologique des thèses de médecine générale quantitatives observationnelles soutenues entre l’année 2021 et l’année 2023 à Sorbonne Université). French General Medicine Conference (Congrès de Médecine Générale France, CMGF), march 2024, Paris, France.

3) **Moussaoui S.** Prevention and at-risk behavior among undocumented migrants in France (Prévention et conduites à risque chez les personnes sans titre de séjour en France). National congress of the college of general teachers (Congrès du College National des Généralistes Enseignants, CNGE), november 2024, Strasbourg, France.

4) **Moussaoui S.** Pain and mental health among undocumented immigrants in France (Douleur et santé mentale chez les immigrés sans titre de séjour en France). French General Medicine Conference (Congrès de Médecine Générale France, CMGF), march 2024, Paris, France.

5) **Moussaoui S.** Health status of undocumented migrants in France: results of the Premiers Pas survey. (État de santé des personnes sans titre de séjour en France : résultats de l'enquête Premiers Pas). National congress of the college of general teachers (Congrès du College National des Généralistes Enseignants, CNGE), december 2023, Lyon, France.

6) **Moussaoui S.** Pain and mental health among undocumented immigrants in France **(**Douleur et santé mentale chez les immigrés sans titre de séjour en France). National congress of the college of general teachers (Congrès du College National des Généralistes Enseignants, CNGE), december 2023, Lyon, France.

7) **Moussaoui S.,** Vignier N. Are immigrants in France more reluctant to get vaccinated than the rest of the population? (Les personnes immigrées en Frances sont-elles plus réticentes à se faire vacciner que le reste de la population ?), French General Medicine Conference (Congrès de Médecine Générale France , CMGF), march 2022, Paris.

8) **Moussaoui S.,** Vignier N. Role of time spent in France in vaccine hesitancy among immigrants: data from the 2016 Health Barometer (Rôle du temps passé en France dans l'hésitation vaccinale chez les immigrés : données du Baromètre santé 2016). Fayr-GP (French Association of Young Researchers in General Practice) conference, april 2021, Paris, France.

2. Posters

1) **Moussaoui S.** Health status of undocumented migrants in France: results of the Premiers Pas survey**.** État de santé des personnes sans titre de séjour en France : résultats de l'enquête Premiers Pas). French General Medicine Conference (Congrès de Médecine Générale France , CMGF) March 2024, Paris, France.

2) **Moussaoui S.,** Vignier N. Are immigrants living in France more reluctant to receive vaccines than native-born French citizens. Orale presentation of the poster. European General Practice Research Network (EGPRN) conference. October 2022, Antwerp, Belgium.

3. Communication on invitation

1) **Moussaoui S.** Évaluation de l'efficacité et de l'acceptabilité d'une démarche d'aller-vers pour les dépistages des cancers à Villejuif. Oral communication. Journée de la SFTG recherche sur la thématique de l'aller- vers en soins primaires. May 2022, Paris.

D. Contributions to books

2024

Chapter co- writing : Vignier N, **Moussaoui S**, Ibanez G. Enjeux de la prise en compte des déterminants sociaux de santé au quotidien par les professionnels de santé, in

Vuillermoz, C, Séverine D, Stéphanie V, Melchior M. *L'épidémiologie sociale : concepts, méthodes usuelles et exemples d'application*. Rennes : Presses de l'École des hautes études en santé publique; 2024. (Vade-mecum pro). 2024.

2022 :

Chapter co- writing : Moussaoui S, Liard R, Vandendriessche J. Le patient migrant en médecine générale, in

Saint-Lary O, Perdrix C, Imbert P. Médecine générale: pour le praticien. Issy-les-Moulineaux: Elsevier Masson; 2022. (Collection Pour le praticien).

Appendix - Enquête Premiers Pas survey

Questionnaire – Version française

Q0. Coder la structure dans laquelle vous effectuez l'interview :

NE PAS POSER

[PROG : Affichage de la liste des structures échantillonnées]

(A tous)

Q1. Bonjour, je travaille pour l'Irdes, en partenariat avec l'Université, nous nous intéressons à la santé et aux soins des personnes étrangères en France. Acceptez-vous de répondre à quelques questions sur ce sujet ?

Consigne : Si la personne dit qu'elle est étrangère mais en situation régulière cocher « 1. Oui, la personne accepte de répondre » et poser le début du questionnaire

1. Oui, la personne accepte de répondre
2. Non, la personne est Française
3. Non, refus de répondre
4. Non, dialogue impossible, barrière de la langue
5. A déjà répondu à cette enquête
6. A la CMU (ou la sécurité sociale)
7. Moins de 18 ans

Si Q1=3,4

(Si refus ou dialogue impossible)

Q2. Sexe de la personne

NE PAS POSER

1. Homme
2. Femme
3. Ne sait pas

Si Q1=3,4

(Si refus ou dialogue impossible) Q3.

La personne est-elle :

NE PAS POSER

(Plusieurs réponses possibles)

1. Seule

2. Avec ses enfants
3. Son conjoint
4. Autre cas, avec d'autres personnes

Si Q1=3,4
(Si refus ou dialogue impossible)

Q4. Selon vous la personne est-elle dans la cible de l'enquête (étrangère sans-papier) ?
NE PAS POSER

1. Oui, très probablement
2. Oui, c'est possible
3. Non, je ne pense pas
4. Non, très probablement pas

Début du questionnaire

Si Q1=1
(Si accepte de répondre au questionnaire)

(A tous)

Q5. Je peux vous poser mon questionnaire en Français. Cependant, il est traduit dans certaines langues. Préférez-vous que je vous pose les questions en français ou y répondre seul, en le lisant, dans une des langues suivantes ?

Enquêteur : Si vous parlez couramment la langue choisie par l'interviewé, vous pouvez lui proposer de lui administrer le questionnaire dans cette langue.

1. Français
2. Anglais
3. Espagnol
4. Russe
5. Albanais
6. Portugais
7. Arabe
8. Dari
9. Chinois
10. Tamoul
11. Pachto
12. Bengali

13. Peul
14. Bambara

(A tous)

Q6. Selon vous comment parlez-vous le [langue choisie en Q5] ?

CITER

1. Très bien
2. Plutôt bien
3. Pas très bien
4. Mal ou très mal
5. [Ne sait pas]
6. [Ne veut pas le dire]

(A tous)

Q7. Selon vous comment lisez-vous le [langue choisie en Q5] ?

CITER

1. Très bien
2. Plutôt bien
3. Pas très bien
4. Mal ou très mal
5. [Ne sait pas]
6. [Ne veut pas le dire]

Eligibilité

(A tous)

Q8. En quelle année êtes-vous né(e) ?

Consignes :

- *En cas d'hésitation : « quel âge avez-vous ? »*
- *Saisir une réponse même approximative*
- *Si ne veut pas répondre, coder « 9999 » ou « 99 »*

1. |_|_|_|_| ou |_|_| ans
2. Moins de 18 ans (né(e) après 2001) **-> fin du questionnaire**

(A tous)

Q9. Etes-vous de nationalité française ?

1. Oui **-> fin du questionnaire**
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q9<>1
(Si n'est pas de nationalité française)

Q10. Avez-vous l'Aide Médicale d'Etat (AME) ?

Il s'agit d'une assurance santé pour les personnes sans titre de séjour qui permet de bénéficier d'un accès aux soins. Elle est accessible sous conditions de résidence stable en France et de ressources.

Enquêteur : montrer attestation AME, carte, courrier
[PROG : Afficher sur l'écran, les images de : attestation AME, carte, courrier, sur un côté de l'écran (doc fourni par l'Irdes)]

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q10=2,3,4
(Si n'a pas l'AME)

Q11. Avez-vous une carte vitale ou une autre carte qui permet de bénéficier de l'assurance maladie en France ?

Enquêteur : montrer carte vitale, attestation PUMA,…
[PROG : Afficher les images de : carte vitale, attestation PUMA, sur un côté de l'écran (doc fourni par l'Irdes)]
CITER
(Plusieurs réponses possibles, le non est exclusif) 1.
Oui, une carte vitale ou la CMU

2. Oui, une autre carte -> laquelle ?.....
3. Non
4. [Ne sait pas]
5. [Ne veut pas le dire]

(A tous)

Q12. Quelle est votre situation administrative en France ?

CITER
(Une seule réponse)

1. Vous avez un titre de séjour ou un récépissé en cours de validité (y compris visa touristique, de travail,…)

2. Vous avez un statut de réfugié
3. Vous êtes demandeur d'asile
4. Vous n'avez pas de titre de séjour en cours de validité
5. Vous êtes Européen
6. Autre, précisez : ……
7. [Ne sait pas]
8. [Ne veut pas le dire]

Si Q12=3
(si est demandeur d'asile)

Q12b. : Avez-vous fait votre demande d'asile en France où êtes-vous « dubliné », c'est-à-dire que vous avez fait votre demande d'asile dans un autre pays ?

1. En France
2. Dans un autre pays (dubliné)
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q12=5
(si est européen)

Q12c. : Possédez-vous une assurance santé dans un autre pays qui couvre vos soins en France ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q12=4,6,7
(Si n'a pas de titre de séjour en cours de validité)

Q13. Avez-vous entrepris des démarches afin d'obtenir un titre de séjour ?

CITER
(Une seule réponse)

1. Oui, vous avez le récépissé de la demande
2. Oui, mais vous n'avez pas de récépissé de la demande
3. Oui, vous avez fait une demande d'asile et vous avez été débouté (demande rejetée)
4. Non, vous n'avez entrepris aucune démarche
5. Autre, précisez :……
6. [Ne sait pas]
7. [Ne veut pas le dire]

Si Q12=4

(Si n'a pas de titre de séjour en cours de validité)

Q14. Dans le passé, avez-vous déjà eu un titre de séjour valide en France ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q12=1,2 et Q10=1
(Immigrant légal et AME)

Q15. Vous me dites que vous avez l'AME et un titre de séjour valide. Vous pourriez donc bénéficier d'une carte vitale de la sécurité sociale pour vos soins. Pourquoi conservez-vous l'AME ?

1. En fait vous êtes n'avez pas de titre de séjour valable
2. Vous ne connaissez pas la carte vitale
3. En fait vous avez la CMU, la sécurité sociale, une carte vitale
4. Vous avez gardé l'AME car vous n'avez pas besoin de payer vos soins
5. Vous attendez d'avoir la CMU (PUMA)
6. Autres, précisez : ……
7. [Ne sait pas]
8. [ne veut pas le dire]

Si Q12=4 et Q11=1
(En situation illégale et a des droits à la sécu)

Q16. Vous n'avez pas de titre de séjour valide et vous avez pourtant la sécurité sociale. Est-ce parce que… ?

1. Vous avez conservé votre carte vitale ou la CMU que vous aviez quand votre titre de séjour était valable
2. Vous utilisez la carte vitale d'un ami, d'un membre de la famille 3. Vous avez conservé la CMU de l'époque où vous étiez demandeur d'asile
4. Autres, précisez : ……
5. [Ne sait pas]
6. [ne veut pas le dire]

Q8=2 OU Q9=1 OU Q12=7,8 OU (Q12=1,2 ET Q10< >1) OU Q15=3 OU Q16 < >2 OU Q12b=1 OU (Q11=1 ET Q12b=2) OU Q12c=1 OU (Q11=1 ET Q12=5)
(Si mineur OU est de nationalité française OU a un titre de séjour)

Q17. Je suis désolé, mon questionnaire est destiné à des personnes majeures qui sont en France sans titre de séjour et qui n'ont pas de couverture maladie. Je ne peux pas vous interroger. Je vous remercie, au revoir.

Début questionnaire éligible

Si Q17 n'est pas posée
(Si éligible)

Santé

Parlons de votre santé.
(A tous)

Q18. Comment est votre état de santé en général ?

CITER
(Une seule réponse)

1. Très bon
2. Bon
3. Assez bon
4. Mauvais
5. Très mauvais
6. [Ne veut pas le dire]

(A tous)

Q19. Avez-vous une maladie ou un problème de santé qui soit chronique ou de caractère durable ?

Consigne : Une maladie chronique est une maladie qui a duré ou peut durer pendant une période de 6 mois ou plus

1. Oui
2. Non
3. [Ne sait pas]
4. [ne veut pas le dire]

(A tous)

Q20. Pouvez-vous porter un sac à provisions de 5kg sur une distance de 200

CITER
(Une seule réponse)

1. Oui, sans difficulté
2. Oui, avec quelques difficultés

3. Oui, avec beaucoup de difficultés
4. Non, vous ne pouvez pas du tout
5. [Ne sait pas]
6. [Ne veut pas le dire]

(A tous)

Q21. Au moment de votre arrivée en France, comment était votre état de santé en général ?

CITER

(Une seule réponse)

1. Très bon
2. Bon
3. Assez bon
4. Mauvais
5. Très mauvais
6. [Ne veut pas le dire]

Caractéristiques individuelles

Nous allons maintenant parler de votre situation personnelle et familiale.

(A tous)

Q22. Dans quel pays êtes-vous né(e) ?

NE PAS CITER

(Une seule réponse)

1. Afghanistan
2. Albanie
3. Algérie
4. Bengladesh
5. Côte d'ivoire
6. Guinée Conakry
7. Mali
8. Maroc
9. Nigéria
10. Pakistan
11. République démocratique du Congo (RDC)
12. Sénégal

13. Soudan
14. Sri Lanka
15. Syrie
16. Tunisie
17. Autre, Précisez : ……

(A tous)

Q23. Quelle est votre nationalité ?

NE PAS CITER

(Plusieurs réponses possibles)

1. Afghanistan
2. Albanie
3. Algérie
4. Bengladesh
5. Côte d'ivoire
6. Guinée Conakry
7. Mali
8. Maroc
9. Nigéria
10. Pakistan
11. République démocratique du Congo (RDC)
12. Sénégal
13. Soudan
14. Sri Lanka
15. Syrie
16. Tunisie
17. Apatride
18. Autre, Précisez : ……

(Pour tous)

Q24. La personne interrogée est :

Enquêteur : à coder sans poser la question

1. Un homme
2. Une femme
3. [Ne sait pas]

(A tous)

Q25. Avez-vous un conjoint ou un partenaire ?

CITER

(Plusieurs réponses possibles en cas de polygamie, le « Non » est exclusif)

Consigne : les cas de séparation, fuite pour raison conjugale,… sont à classer dans « autre »

1. Oui, qui vi(ven)t avec vous
2. Oui, qui vi(ven)t en France mais pas avec vous
3. Oui, qui vi(ven)t dans un autre pays
4. Non
5. Autre, précisez……
6. [Ne sait pas]
7. [Ne veut pas le dire]

(A tous)

Q26. Avez-vous des enfants ?

CITER Consignes :

- *Quel que soit l'âge des enfants*
- *Même si la personne ne vit pas en France avec ses enfants coder « Oui »*

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q26=1

(Si a des enfants)

Q27. Combien avez-vous d'enfants mineurs qui habitent avec vous ?

Consigne : Si NSP ou refus, coder 99

|_|_| enfants

Si Q27>=1

(Si a au moins un enfant)

Q28. Combien d'entre eux sont nés en France / Cet enfant est-il né en France ?

|_|_| enfant(s)

(A tous)

Q29. Votre père est-il toujours en vie ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

(A tous)

Q30. Votre mère est-elle toujours en vie ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

(A tous)

Q31. Jusqu'à quel âge êtes-vous allé régulièrement à l'école, au lycée ou à l'université ?

Consignes :

- *Que ce soit en France ou dans un autre pays*
- *Si étude en cours, coder 97*
- *Si n'est jamais allé à l'école, coder 98*
- *Si NSP ou refus, coder 99*

|_|_| ans

(A tous)

Q32. Quelle(s) est/sont votre ou vos langue(s) maternelle(s), celle(s) que vous parliez à la maison lorsque vous étiez enfant ?

NE PAS CITER

(Plusieurs réponses possibles)

1. Français
2. Anglais
3. Espagnol
4. Russe
5. Albanais
6. Portugais
7. Arabe
8. Dari
9. Chinois
10. Tamoul
11. Pachto
12. Bengali
13. Peul

14. Bambara
15. Autre, préciser :……

Parcours

(A tous)

Q33. Depuis combien d'années vivez-vous en France ?

Consignes :

- *On parle de la dernière installation*
- *En cas d'hésitation : « En quelle année êtes-vous arrivé en France ? »*
- *Si moins d'un an coder 0*
- *Si ne sait pas précisément prendre une réponse même approximative*
- *Si ne veut pas répondre, coder « 99 »*

|_|_| ans

Si l'enquêté donne l'année de son arrivée en France : |_|_|_|_|

Si Q33=00 ou Q33=2018, 2019
(Si arrivée en France depuis moins d'un an)

Q34. Si moins d'un an précisez le mois et l'année d'arrivée :

|_|_|/|_|_|_|

(A tous)

Q35. La France est-elle le pays dans lequel vous souhaitez vous installer ?

1. Oui, vous comptez rester durablement en France
2. Non, vous souhaitez rester en France seulement pour une durée limitée
3. Vous n'avez pas de projet précis
4. [Ne sait pas]
5. [Ne veut pas le dire]

Si Q35=2
(Si ne souhaite pas s'établir en France)

Q36. Combien de temps comptez-vous rester en France ?

CITER
(Une seule réponse)
Consigne : Si prévoit de rester 1 an, cocher « 2 »

1. Quelques jours ou quelques mois

2. Plus longtemps, quelques années
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q35=2
(Si ne souhaite pas s'établir en France)

Q37. A la suite de votre séjour en France, prévoyez-vous de retourner dans votre pays d'origine ?

CITER
(Une seule réponse)

1. Oui
2. Non, d'aller dans un autre pays
3. [Ne sait pas]
4. [Ne veut pas le dire]

(A tous)

Q38. Pour quelle(s)raison(s) êtes-vous venu(e) en France ?

(Plusieurs réponses possibles)
Consigne : Si plusieurs épisodes, prendre en compte la dernière fois

1. Indiquez le ou les motifs : ……
2. [Ne sait pas]
3. [Ne veut pas le dire]

(A tous)

Q39. Etes-vous venu en France pour vous faire soigner ou faire soigner un de vos enfants ?

NE PAS CITER
(Plusieurs réponses possibles)
Consigne : Si plusieurs épisodes, prendre en compte la dernière fois

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

(A tous)

Q40. Comment êtes-vous entré(e) en France ?

CITER

(Une seule réponse)
Consigne : Si plusieurs épisodes, prendre en compte la dernière fois

1. Avec un visa étudiant
2. Avec un visa de travail
3. Avec un visa de tourisme
4. Sans visa, vous êtes arrivé en France illégalement
5. Vous n'aviez pas besoin de visa (uniquement pour les ressortissants des pays de l'UE)
6. Autre, précisez :……..
7. [Ne sait pas]
8. [Ne veut pas le dire]

« Situation en France »

(A tous)

Q41. Actuellement vous habitez…

CITER
(Une seule réponse)
Consigne : Si plusieurs endroits, prendre le plus régulier

1. Dans un appartement, un logement à votre nom ou celui de votre conjoint
2. Dans un appartement, un logement chez des amis ou de la famille
3. Dans un appartement, en colocation
4. Dans un centre d'accueil (CHRS ou hébergement d'urgence)
5. Dans un foyer (SONACOTRA, ADEF, AFTAM…)
6. A l'hôtel (y compris par l'intermédiaire du SAMU social)
7. Dans la rue, un lieu public, un squat, un abri,…
8. Autre, précisez : ……
9. [Ne sait pas]
10. [Ne veut pas le dire]

Si Q41=1, 2, 3
(Si habite dans un appartement)

Q42. Combien de personnes au total, vivent dans ce logement, y compris vous-même ?

Consignes :

- *Quel que soit le lieu d'habitation, on veut connaître le nombre de membres de la famille, d'amis, de colocataires,… avec vivent avec le répondant*
- *Si NSP ou refus, coder 99*
- *Si vit seul, coder 00*

|_|_| personnes y compris le répondant

Si Q41=1, 2, 3
(Si habite dans un appartement)

Q43. En dehors des toilettes et de la salle de bains, combien de pièces y a-t-il dans ce logement?

Consignes :

- *Si NSP ou refus, coder 99*

|_|_| pièces

(A tous)

Q44. Travaillez-vous actuellement ?

Consignes :

- *Prendre en compte tous les emplois qui apportent une rémunération, qu'ils soient déclarés ou non - Si la personne n'a pas un travail stable, répondre pour la semaine passée. - Si la personne mendie, cocher Non.*

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas dire]

Si Q44=1
(Si travaille actuellement)

Q45. Que faites-vous comme travail(s) ?

Consignes :

- *Notez en clair – indiquez le maximum de précisions.*
- *Si plusieurs emplois, saisir les deux principaux en commençant par celui qui prend le plus de temps ou si prennent le même temps, celui qui rapporte le plus d'argent*

……

Si Q44=1
(Si travaille actuellement)

Q46. Combien d'heure avez-vous travaillé le mois dernier ? *Consignes :*

- *Faire la somme de toutes les activités*
- *Si le nombre d'heures exactes est inconnu, indiquez un nombre approximatif*

1. |_|_|_|
2. [Ne sait pas]
3. [Ne veut pas le dire]

Si Q44=2 ou 3

(Si ne travaille pas actuellement ou si NSP s'il travaille actuellement) Q47.

Quel est le dernier travail que vous ayez fait en France ?

Consignes : Notez en clair – indiquez le maximum de précisions

……

|_| N'a jamais travaillé en France

(A tous)

Q48. Quel est le dernier travail que vous ayez fait avant de quitter votre pays d'origine ?

Consignes :

- *Notez en clair – indiquez le maximum de précisions*
- *Si le répondant était étudiant ou pas encore en âge de travailler lors de son arrivée en France cocher « N'a jamais travaillé »*

……

|_| N'a jamais travaillé

(A tous)

Q48b : Combien d'argent au total, vous-même et les personnes de votre ménage qui vivent avec vous, avez-vous eu pour vivre le mois dernier ?

Enquêteur :

- *En comptant toutes les sources d'argent possible (Y compris les revenus du travail, les aides sociales, les dons…)*
- *Si NSP, relancer "Et même approximativement ?"*
- *Si NSP, coder 999 999*

|_|_|_|_|_|_| euros

Si Q48b<>.

(Si déclare le montant des revenus en Q48b)

Q48c : Pour combien de personnes ? |_|_|

(A tous)

Q48d : Le mois dernier, avez-vous reçu de l'aide en nature, nourriture, vêtements,…

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

(A tous)

Q49. Le mois dernier, avez-vous donné ou prêté de l'argent à certains de vos proches, des membres de votre famille,… ?

CITER

(Plusieurs réponses possibles)

Enquêteur : Poser en Oui/Non

1. Oui, à des personnes qui vivent en France
2. Oui, à des personnes qui vivent dans votre pays de naissance
3. Oui, à des personnes qui vivent dans un autre pays
4. Autre, précisez : ……
5. Non
6. [Ne sait pas]
7. [Ne veut pas le dire]

(A tous)

Q51. Avez-vous quelqu'un avec qui parler de vos problèmes personnels ?

CITER

(Plusieurs réponses possibles)

1. Oui, en France
2. Oui, dans votre pays d'origine
3. Oui, dans un autre pays
4. Non
5. [Ne sait pas]
6. [Ne veut pas le dire]

(A tous)

Q50. Pour vous aider dans vos démarches administratives ou de soins, pouvez-vous recevoir de l'aide…

CITER - POSER EN OUI/NON

Consigne : Si n'a pas besoin d'aide, cocher non concerné

1. De membres de votre famille ?
2. D'amis, de collègues, de voisins ?
3. D'assistantes sociales, de centres sociaux, de la mairie ou d'associations ?
4. D'organisations culturelles ou religieuses ?
5. Autre, précisez……
6. D'aucune de ces personnes
7. [Ne sait pas]
8. [Ne veut pas le dire]

9. [Non concerné]

SANTE

Revenons maintenant à votre santé.

Si Q24=2

(Si la personne interrogée est une femme) Q52.

Êtes-vous enceinte ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne vaut pas le dire]

Si Q52=2

(Si la femme n'est pas enceinte)

Q53. Avez-vous été enceinte au cours des 12 derniers mois ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne vaut pas le dire]

Si Q52=1 ou Q53=1

(Si la femme est enceinte ou l'a été au cours des 12 derniers mois)

Q54. Pour cette dernière grossesse, êtes-vous [avez-vous été] suivie par un médecin ou une sagefemme ?

CITER

(Une seule réponse)

1. Oui, une fois
2. Oui, régulièrement
3. Non
4. [Ne sait pas]
5. [Ne veut pas le dire]

(A tous)

Q55. Actuellement, êtes-vous atteint(e) de l'un des problèmes de santé suivants…

CITER - POSER EN OUI/NON

(Plusieurs réponses possibles)

1. Diabète
2. Hypertension artérielle
3. Cancer(s)
4. Problèmes psychiques, de nervosité, de sommeil, stress…
5. Maladies du cœur
6. Problèmes respiratoire
7. Maladies infectieuses ou tropicales (VIH, hépatites, paludisme,…)
8. Maladies de la peau
9. Problèmes digestifs, mal à l'estomac
10. Maladie du foie
11. Problèmes neurologiques
12. Problèmes gynécologiques
13. Douleur des muscles et des articulations
14. Autres, précisez…….
15. Aucun de ces problèmes de santé
16. [Ne sait pas]
17. [Ne veut pas le dire]

Si Q55=4

(Si problème psychique)

Q56. De quel(s) problème psychique(s) s'agit-il ?

NE PAS CITER

(Plusieurs réponses possibles)

Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. Dépression
2. Anxiété
3. Trouble du sommeil
4. Psychose, psychotraumatisme
5. Autres, précisez…….

Si Q55=5

(Si maladie du coeur)

Q57. De quelle(s) maladie(s) du cœur s'agit-il ?

NE PAS CITER

(Plusieurs réponses possibles)

Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. Angine de poitrine
2. Infarctus
3. Insuffisance cardiaque
4. Autres, précisez……..

Si Q55=6
(Si problème respiratoire)

Q58. De quel(s) problème(s) respiratoire s'agit-il ?

NE PAS CITER
(Plusieurs réponses possibles)
Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. Bronchite chronique, emphysème, BPCO…..
2. Asthme
3. Insuffisance respiratoire
4. Pneumonie
5. Autres, précisez……

Si Q55=7
(Si maladie infectieuse ou tropicale)

Q59. De quelle(s) maladie(s) infectieuse(s) ou tropicale(s) s'agit-il ?

NE PAS CITER
(Plusieurs réponses possibles)
Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. VIH/Sida
2. Méningite
3. Tuberculose
4. Hépatite B
5. Hépatite C
6. Bilharziose (sang dans les urines)
7. Paludisme
8. Autres, précisez……..

Si Q55=8
(Si maladie de la peau)

Q60. De quelle(s) maladie(s) de la peau s'agit-il ?

NE PAS CITER
(Plusieurs réponses possibles)
Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. Eczéma
2. Infection de la peau, érysipèle
3. Mycose, champignon
4. Gale
5. Autres, précisez……

Si Q55=9
(Si problème digestif)

Q61. De quel(s) problème(s) digestif(s) s'agit-il ?

NE PAS CITER
(Plusieurs réponses possibles)
Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. Ulcère, gastrite, douleur gastrite
2. Reflux
3. Douleurs abdominales
4. Diarrhée chronique, mal au ventre
5. Constipation
6. Autres, précisez……..

Si Q55=10
(Si maladie du foie)

Q62. De quelle(s) maladie(s) du foie s'agit-il ?

NE PAS CITER
(Plusieurs réponses possibles)
Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. Cirrhose
2. Hépatites B 3. Hépatites C
4. Autres, précisez……..

Si Q55=11
(Si problème neurologique)

Q63. De quel(s) problème(s) neurologique(s) s'agit-il ?

NE PAS CITER
(Plusieurs réponses possibles)
Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. Migraine
2. Épilepsie
3. AVC

4. Autres, précisez……

Si Q55=12
(Si problèmes gynécologiques)

Q64. De quel(s) problème(s) gynécologique(s) s'agit-il ?

NE PAS CITER
(Plusieurs réponses possibles)
Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. Mycose vaginale, champignon
2. Vaginite, écoulement vaginal
3. Douleurs du bas ventre, douleurs de règles
4. Chlamydiae, gonocoque
5. Autres, précisez……

Si Q55=13
(Si douleur des muscles et des articulations)

Q65. De quels problème(s) des muscles ou des articulations s'agit-il ?

NE PAS CITER
(Plusieurs réponses possibles)
Consigne : si la maladie ne figure pas dans la liste, l'indiquer dans « Autres »

1. Rhumatismes
2. Douleurs articulaires
3. Douleurs musculaires
4. Lombalgie, mal de dos
5. Autres, précisez……

Pour chaque maladie de Q55=1,2,3 et pour chaque maladie cochée dans le détail des questions des listes fines Q56 à Q65
(Pour chaque maladie)

Q66. Pour votre <afficher item de Q55=1,2,3 et de Q56 à Q65> avez-vous été diagnostiqué par un médecin avant ou après votre arrivée en France ?

CITER
(Une seule réponse)

1. Avant
2. Après
3. N'a pas été diagnostiqué par un médecin
4. [Ne sait pas]
5. [Ne veut pas le dire]

(A tous)

Q67. Quelle est votre taille ?

Enquêteur :

- *Si NSP relancer : "Et même approximativement ?"*
- *Si NSP ou REFUS, coder 9 99*
- *Choisir l'unité*

|_|m|_|_| cm
|_|_|_|ft

(A tous)

Q68. Quel est votre poids ?

Enquêteur :

- *Si NSP, relancer : "Et même approximativement ?"*
- *Si NSP ou REFUS, coder 00*
- *Choisir l'unité*

|_|_|kg
|_|_|lb

(A tous)

Q69. Sans lunettes, avez-vous des problèmes de vue ?

Consigne : considérer les lentilles de contact comme des lunettes

1. Oui
2. Non
3. [Ne veut pas le dire]

Si Q69=1

(Si problème de vue)

Q70. Avez-vous des lunettes ?

Consigne : pour les lentilles de contact, cocher OUI

1. Oui
2. Non
3. [Ne veut pas le dire]

(A tous)

Q71. Avez-vous…?

CITER - POSER EN OUI/NON

(Plusieurs réponses possibles – le « 4 » est exclusif)

1. Des douleurs dentaires ?
2. Des dents manquantes ou cassées ?
3. Des dents infectées (caries) ?
4. Aucun problème dentaire

5. [Ne sait pas]
6. [Ne veut pas le dire]

(A tous)

Q72. Fumez-vous du tabac (cigarettes, cigares, pipes, chicha, tabac à chiquer…) ?

CITER

(Une seule réponse)

1. Oui, tous les jours
2. Oui, occasionnellement
3. Non, pas du tout
4. [Ne veut pas le dire]

(A tous)

Q73. Combien de fois vous arrive-t-il de consommer de l'alcool ?

CITER

(Une seule réponse)

1. Jamais
2. 1 fois par mois ou moins
3. 2 à 4 fois par mois
4. 2 à 3 fois par semaine
5. 4 à 6 fois par semaine
6. Tous les jours
7. [Ne sait pas]
8. [Ne veut pas le dire]

(Si Q73<> 1)

(Si consomme de l'alcool)

Q74. Combien de verres standards consommez-vous au cours d'une journée ordinaire où vous buvez de l'alcool ?)

Exemples de verre standard :

CITER

(Une seule réponse)

1. 1 ou 2 verres
2. 3 à 4 verres 3. 5 à 6 verres
4. 7 à 9 verres
5. 10 verres ou plus
6. [Ne sait pas]
7. [Ne veut pas le dire]

(Si Q73<> 1)

(Si consomme de l'alcool)

Q75. Combien de fois vous arrive-t-il de boire 6 verres standards ou plus au cours d'une même occasion ?)

CITER

(Une seule réponse)

1. Jamais
2. Moins de 1 fois par mois
3. Une fois par mois
4. Une fois par semaine
5. Tous les jours ou presque
6. [Ne sait pas]
7. [Ne veut pas le dire]

(A tous)

Q76. Au cours des 12 derniers mois avez-vous consommé du cannabis ?

CITER

(Une seule réponse)

1. Non, jamais
2. Oui, 1 fois par mois ou moins

3. Oui, 2 à 4 fois par mois
4. Oui, 2 à 3 fois par semaine
5. Oui, 4 à 6 fois par semaine
6. Oui, Tous les jours
7. [Ne sait pas]
8. [Ne veut pas le dire]

(A tous)

Q77. À un moment donné au cours des 12 derniers mois, vous êtes-vous trouvé(e) dans une situation où, vous n'avez pas eu assez à manger ?

CITER

(Une seule réponse)

1. Souvent
2. Parfois
3. Jamais
4. [Ne sait pas]
5. [ne veut pas le dire]

Les quelques questions qui suivent concernent votre état émotionnel.

(A tous)

Q78. Au cours des 2 dernières semaines, à quelle fréquence avez-vous été gêné(e) par les problèmes suivants ?

(Une réponse par ligne)

	Jamais	Plusieurs jours	Plus de la moitié des jours	Presque tous les jours	[NSP]	[Ne veut pas le dire]
Avoir peu d'intérêt ou de plaisir à faire les choses						
Être triste, déprimé(e) ou désespéré(e)						
Avoir des difficultés à s'endormir ou à rester endormi(e), ou dormir trop						
Se sentir fatigué(e) ou manquer d'énergie						

Avoir peu d'appétit ou manger trop						
Avoir une mauvaise opinion de soi-même, ou avoir le sentiment d'être nul(le), ou d'avoir déçu sa famille ou s'être déçu(e) soi-même						
Avoir du mal à se concentrer, par exemple, pour lire le journal ou regarder la télévision						
Bouger ou parler si lentement que les autres auraient pu le remarquer. Ou au contraire, être si agité(e) que vous avez du mal à tenir en place par rapport à d'habitude						
Penser qu'il vaudrait mieux mourir ou envisager de vous faire du mal d'une manière ou d'une autre						

Nous allons maintenant parler des évènements traumatisants que vous avez pu rencontrer au cours de votre vie, que ce soit au cours de votre migration ou à tout autre moment.

Q79. Parfois, il arrive des choses particulièrement effrayantes, horribles ou traumatisantes, comme un accident grave, un incendie, une agression physique ou sexuelle, un tremblement de terre ou une inondation, une guerre, voir quelqu'un se faire tuer ou gravement blessé, l'assassinat ou le suicide d'un proche. Avez-vous déjà vécu ce genre d'évènement ?

1. Oui
2. Non
3. [Ne sait pas]
4. [ne veut pas le dire]

Si Q79=1

(Si a vécu un évènement traumatisant)

Q80. Au cours du mois dernier avez-vous… ?

POSER EN OUI/NON

(Plusieurs réponses possibles)

1. Fait des cauchemars à propos de l'événement ou y avez-vous pensé malgré vous
2. Fait de votre mieux pour ne pas penser à l'événement ou avez-vous évité les situations qui vous le rappellent

3. Eté constamment sur vos gardes, ou avez-vous sursauté facilement
4. Eu l'impression d'être engourdi ou détaché des gens, de vos activités ou de votre environnement 5. Vous êtes-vous senti coupable ou incapable de vous empêcher de vous faire des reproches ou d'en faire à d'autres personnes au sujet de cet événement ou de ses conséquences
6. Aucune de ces propositions
7. [Ne sait pas]
8. [ne veut pas le dire]

Si Q79=1

(Si a vécu un évènement traumatisant)

Q81. Ce ou ces évènement(s) ont-t-ils eu lieu…

CITER

(Plusieurs réponses possibles)

1. Dans votre pays d'origine
2. Depuis que vous êtes en France
3. Pendant votre parcours de migration
4. [Ne sait pas]
5. [Ne veut pas le dire]

AME

Si Q10=2

Nous allons maintenant parlé de l'AME, l'Aide médicale d'Etat, il s'agit d'une assurance gratuite pour la santé qui s'adresse aux personnes sans titre de séjour.

Si Q10=1

Nous allons maintenant parlé de l'AME, l'Aide médicale d'Etat.

Si Q10=2

(Si n'a pas l'AME)

Q82. Actuellement, vous n'avez pas l'AME, mais en aviez-vous déjà entendu parler avant que nous en parlions aujourd'hui?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q10=2 et Q82=1
(Si n'a pas l'AME et a déjà entendu parlé de l'AME)

Q83. Actuellement, vous n'avez pas l'AME, mais l'avez-vous déjà eue dans le passé ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q10=2 et Q82=1 et Q83=2
(Si n'a jamais eu l'AME et si a déjà entendu parler de l'AME)

Q84. Actuellement, vous n'avez pas l'AME, mais avez-vous fait des démarches pour l'obtenir ?

CITER
(Une seule réponse)

1. Oui, les démarches sont en cours, vous avez déposé le dossier et vous attendez une réponse
2. Oui, vous avez effectué des démarches mais vous avez abandonné
3. Oui, vous avez effectué des démarches mais l'AME vous a été refusée
4. Non, vous n'avez pas fait de démarches pour obtenir l'AME
5. [Ne sait pas]
6. [Ne veut pas le dire]

Si Q84=4
(Si n'a pas fait de démarche pour obtenir l'AME)

Q85. Pour quelles raisons n'avez-vous pas fait de démarches pour obtenir l'AME ?

CITER
(Plusieurs réponses possibles)

1. Vous ne connaissez pas l'AME
2. Vous ne savez pas à qui vous adresser pour demander l'AME
3. Vous n'avez pas de justificatifs de revenus, de résidence, d'identité
4. Vous n'arrivez pas à vous faire comprendre
5. Vous avez peur de vous faire contrôler
6. Vous avez des choses plus importantes à faire comme par exemple vous loger ou penser à l'alimentation
7. Vous êtes en bonne santé, vous pensez ne pas en avoir besoin
8. Vous n'êtes pas éligible à l'AME (en France depuis moins de 3 mois)

9. Pour une autre raison, précisez : ……..……..……
10. [Ne sait pas]
11. [Ne veut pas le dire]

Si Q83=1
(Si a déjà eu l'AME)

Q86. Pourquoi n'avez-vous pas redemandé l'AME ?

CITER
(Plusieurs réponses possibles)

1. Vous avez des choses plus importantes à faire comme par exemple, vous loger ou penser à l'alimentation
2. Ça ne sert à rien, vous n'êtes pas malade
3. Les démarches sont trop compliquées
4. Vous préférez aller vous faire soigner dans des lieux où vous n'avez pas besoin de l'AME
5. Pour d'autres raisons, précisez : ……
6. [Ne sait pas]
7. [Ne veut pas le dire]

Si Q10=1 ou (Q10=2 and (Q83=1)
(Si a l'AME actuellement OU s'il ne l'a pas mais qu'il l'a déjà eu dans le passé) Q87.
En quelle année avez-vous eu l'AME pour la première fois ?

Consigne : Si NSP coder 0000 |_|_|_|_|

Si Q10=1 ou (Q10=2 and ((Q84=1,2,3) ou (Q83=1))
(Si a l'AME actuellement OU s'il ne l'a pas mais qu'il a entrepris des démarches pour l'avoir ou qu'il l'a déjà eu dans le passé)

Q88. Qui vous a informé de l'existence de l'AME ?

CITER
(Plusieurs réponses possibles)

1. Un ami, un membre de votre famille
2. Une association
3. Un médecin, une personne de la PASS, d'un centre de santé,…
4. Une assistante sociale
5. D'une autre façon, précisez :……..
6. [Ne sait pas]
7. [Ne veut pas le dire]

Si Q10=1
(Si a l'AME actuellement)

Q89. A votre première demande d'AME, avez-vous été accompagné ou aidé dans vos démarches ?

CITER
(Plusieurs réponses possibles)

1. Oui, par un(e) ami(e), un membre de la famille
2. Oui, par une association
3. Oui, par un médecin, une personne de la PASS, d'un centre de santé,…
4. Oui, par une assistante sociale
5. Oui, d'une autre façon, précisez :……
6. Non
7. [Ne sait pas]
8. [Ne veut pas le dire]

Si Q10=1)
(Si a l'AME actuellement)

Q90. Une fois le dossier déposé, combien de temps avez-vous attendu pour avoir l'AME ?

CITER
(Une seule réponse)

1. Moins de 15 jours
2. Entre 15 jours et moins d'1 mois
3. Entre 1 et moins de 2 mois
4. Entre 2 et moins de 6 mois
5. 6 mois ou plus
6. [Ne sait pas]
7. [Ne veut pas le dire]

Si Q10=1 ou (Q10=2 and ((Q84=1,2,3) ou (Q83=1))
(Si a l'AME actuellement OU s'il ne l'a pas mais qu'il a entrepris des démarches pour l'avoir ou qu'il l'a déjà eu dans le passé)

Q91. Avez-vous eu des difficultés pour constituer votre dossier d'AME ?

CITER – POSER EN OUI/NON
(Plusieurs réponses possibles, le « [Non, aucune difficulté] *» est exclusif)*
<u>Consigne</u> : Il peut s'agir de n'importe quel type de difficultés, ne pas prendre en compte seulement les difficultés à fournir les justificatifs, préciser les autres difficultés rencontrées dans « autre »

1. Oui, pour fournir un justificatif pour les 3 mois de résidence en France
2. Oui, pour fournir un justificatif de domicile (de là où vous habitez)
3. Oui, pour fournir un justificatif de revenus (d'argent)
4. Oui, pour fournir un justificatif de votre identité
5. Oui, d'autres difficultés ? Précisez :……
6. Non, aucune difficulté
7. [Ne sait pas]

8. [Ne veut pas le dire]

Si Q10=1 ou (Q10=2 and Q83=1)
(Si a l'AME ou s'il l'a déjà eu dans le passé)

Q92. En allant vous faire soigner, au cabinet du médecin ou à l'hôpital, vous est-il déjà arrivé de ne pas utiliser votre carte d'AME …

CITER – POSER EN OUI/NON
(Plusieurs réponses possibles, [1] et [7] sont *exclusives)*

1. … Non, vous l'utilisez à chaque fois
2. … Oui, parce que c'était trop compliqué
3. … Oui, parce que le médecin ne prenait pas la carte d'AME
4. … Oui, parce que vous vouliez être traité comme un patient comme les autres
5. … Oui, parce que vous aviez peur d'être dénoncé
6. … Oui, parce qu'on ne vous l'a pas demandé
7. … Oui, pour une autre raison, précisez : ……
8. … Vous n'êtes jamais allé vous faire soigner
9. [Ne sait pas]
10. [Ne veut pas le dire]

(A tous)

Q93. Vous est-il déjà arrivé d'utiliser pour vous-même, une carte d'une autre personne (famille, enfant, ami…) ?

CITER
(Plusieurs réponses possibles)

1. Oui, la carte d'AME
2. Oui, la carte vitale ou la carte de CMU
3. Oui, la carte européenne de santé
4. Oui, une autre carte, précisez : ……..
5. Non
6. [Ne sait pas]
7. [Ne veut pas le dire]

Si Q10=1
(Si a l'AME)

Q94. Savez-vous à quel moment vos droits à l'AME vont s'arrêter ?

1. Oui
2. Non
3. [Ne veut pas le dire]

Si Q94=1 ou 3

(Si sait quand ses droits vont prendre fin ou ne veut pas dire s'il sait)

Q95. Lorsque vos droits vont s'arrêter, avez-vous l'intention de demander à nouveau l'AME ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

(A tous)

Q96. Dans le passé, avez-vous déjà eu la CMU (PUMA) ou une carte vitale ?

1. Oui
2. Non
3. Ne sait pas
4. Ne veut pas le dire

Recours, renoncement et refus de soins

Les dernières questions concernent votre recours aux soins.

(A tous)

Q97. Depuis votre arrivée en France, avez-vous…

(Une réponse par ligne)

	Oui	Non	[Ne sait pas]	[Ne veut pas le dire]
… fait d'un bilan de santé, un check-up ?				
… fait une radio des poumons ?				
… eu un test de dépistage du VIH SIDA ?				
… eu un test de dépistage des hépatites B et C ?				
… été vacciné, il s'agit d'une injection dans l'épaule ?				
… fait un frottis cervico vaginal ? (poser uniquement aux femmes (si Q24=2))				

Pour chaque question de Q97=Oui

Q98. En France, de quand date votre dernier [libellé de Q97=Oui] ?

CITER

(Une seule réponse)

1. Moins d'1 an
2. Moins de 2 ans
3. Entre 3 et 5 ans
4. [Ne sait pas]
5. [Ne veut pas le dire]

(A tous)

Q99. [Si en France depuis plus d'un an (Q33>=1)] <Au cours des 12 derniers mois, en France> [Si en France depuis moins d'un an (Q33=0)] <Depuis que vous êtes en France>, en dehors des passages aux urgences, avez-vous passé au moins une nuit à l'hôpital pour vous-même ?

Consigne : Pour une femme, hors accouchement

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

(A tous)

Q100. [Si en France depuis plus d'un an (Q33>=1)] <En France, au cours des 12 derniers mois> [Si en France depuis moins d'un an (Q33=0)] <Depuis que vous êtes en France>, avez-vous consulté un médecin dans les lieux suivants ?

CITER - POSER EN OUI/NON

(Plusieurs réponses possibles)

Consigne : Si la personne est en France depuis moins de 12 mois, prendre en compte seulement les consultations depuis l'arrivée en France

1. Chez le médecin (en cabinet) -> combien de fois |_|_|
2. Aux urgences -> combien de fois |_|_|
3. A la PASS -> combien de fois |_|_|
4. A l'hôpital (hors PASS) -> combien de fois |_|_|
5. Dans un centre de soins, centre de santé -> combien de fois |_|_|
6. Dans un Espace Solidarité Insertion (ESI) -> combien de fois |_|_|
7. Dans une association (y compris CASO) -> combien de fois |_|_|
8. Dans un autre lieu de soins, précisez (PROG : offrir la possibilité d'en saisir 5) : ..... -> combien de fois |_|_|
9. [Ne sait pas]
10. [Ne veut pas le dire]

Si somme des « combien de fois » des Q100>=1

(Si a eu au moins une consultation en France au cours des 12 derniers mois)

Q101. En France, lors de votre dernière consultation, avez-vous eu des difficultés à comprendre ou à vous faire comprendre par le médecin ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q101=1 ou 2
(Si a répondu à la question précédente)

Q102. Lors de cette consultation, avez-vous été aidé pour des problèmes de langues ?

CITER
(Plusieurs réponses possibles)

1. Oui, par un proche
2. Oui, par un interprète
3. Oui, par une personne du service qui parlait votre langue
4. Non, vous n'en aviez pas besoin
5. Non et vous en auriez eu besoin
6. [Ne sait pas]
7. [Ne veut pas le dire]

(A tous)

Q103. En France, lorsque vous avez un problème de santé, où allez-vous consulter habituellement ?

CITER
(Une seule réponse)
Enquêteur : Si l'interviewé indique qu'il ne consulte jamais, l'indiquer dans « autre »

1. Chez le médecin (en cabinet)
2. Aux urgences
3. A la PASS
4. A l'hôpital
5. Dans un centre de soins, un centre de la sécurité sociale, un des Espaces Solidarité Insertion (ESI)
6. Dans une association (y compris CASO)
7. Chez le guérisseur, marabout, magnétiseur,…
8. A la pharmacie
9. Dans un autre lieu de soins, précisez : ……..
10. Ne consulte pas

11. [Sans objet, n'a pas eu de problème de santé]
12. [Ne sait pas]
13. [Ne veut pas le dire]

Si Q103=2 ou 6 et Q10=1
(Si consulte en Pass ou dans une association et a l'AME)

Q105. Pourquoi continuez-vous à consulter [si Q103=2] <en Pass> [si Q103=6] <dans une association> alors que vous avez l'AME ?

NE PAS CITER
(Plusieurs réponses possibles)

1. Parce que vous ne savez pas où aller d'autre
2. Parce que c'est là que se trouve votre médecin habituel
3. Parce qu'on y parle votre langue
4. Parce que vous avez peur qu'on refuse de vous soigner ailleurs
5. Parce que vous avez peur d'un contrôle d'identité
6. Parce que vous n'avez pas le droit d'aller ailleurs
7. Autres, précisez :……
8. [Ne sait pas]
9. [Ne veut pas le dire]

Si Q103<>2 ou 6 et Q10=1
(Si ne consulte pas en Pass ou en Caso et a l'AME)

Q106. Depuis que vous avez l'AME, avez-vous changé de lieu de soins habituel ?

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

(A tous)

Q107. Dans votre pays d'origine, lorsque vous aviez un problème de santé où alliez-vous prioritairement consulter ?

CITER
(Une seule réponse)
Consigne : Si ne consulte jamais, l'indiquer dans « autre »

1. Chez le médecin (en cabinet)
2. Aux urgences
3. A l'hôpital

4. Dans un dispensaire, centre de soins, un ONG
5. Chez le guérisseur, marabout, magnétiseur,…
6. Dans un autre lieu de soins, précisez : ……..
7. [Ne sait pas]
8. [Ne veut pas le dire]

(A tous)

Q108. [Si en France depuis plus de 6 mois (Q34>6mois ou Q33>=1)] <En France, au cours des 6 derniers mois> [Si en France depuis moins de 6 mois (Q34<6mois)] <Depuis que vous êtes en France>, avez-vous eu un problème de santé pour lequel vous n'êtes pas allé voir un médecin ?

Consigne : Si la personne est en France depuis moins de 6 mois, prendre en compte seulement les situations depuis l'arrivée en France

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

Si Q108=1

(Si a renoncé à voir un médecin au cours des 6 derniers mois) Q109.

Pourquoi n'y êtes-vous pas allé ?

NE PAS CITER

(Plusieurs réponses possibles)

1. Parce que c'était trop cher
2. Vous n'avez pas d'assurance maladie et/ou pas les papiers nécessaires
3. Parce que vous ne saviez pas où aller
4. A cause de la langue
5. Parce que vous aviez peur d'un contrôle, peur de la police,…
6. Autres, précisez : ……
7. [Ne sait pas]
8. [Ne veut pas le dire]

Si Q108=1 et [Q10=1 ou (Q10=2 and Q83=1)]

(Si a renoncé à voir un médecin au cours des 6 derniers mois et a l'AME ou s'il l'a déjà eu dans le passé) Q110.

A ce moment-là, aviez-vous l'AME ?

(Une seule réponse)

1. Oui
2. Non
3. [Ne sait pas]
4. [Ne veut pas le dire]

(A tous)

Q112. [Si en France depuis plus d'un an (Q33>=1)] <En France, au cours des 12 derniers mois> [Si en France depuis moins d'un an (Q33=0)] <Depuis que vous êtes en France>, vous est-il arrivé qu'un médecin ou un autre professionnel de santé, comme un dentiste, un pharmacien,… refuse de vous recevoir ou de vous revoir ?

CITER

(Une seule réponse)

Consigne : Si la personne est en France depuis moins de 12 mois, prendre en compte seulement les cas depuis l'arrivée en France

1. Oui
2. Non
3. Non concerné / n'a jamais essayé d'aller voir un médecin ou un professionnel de santé
4. [Ne sait pas]
5. [Ne veut pas le dire]

Si Q112=1

(Si a été victime d'un refus de soins)

Q113. D'après vous était-ce …

CITER

(Plusieurs réponses possibles)

1. Parce que vous aviez l'AME
2. Parce que vous étiez étranger
3. Parce que vous ne parliez pas bien Français
4. Parce que le médecin n'avait plus de place
5. A cause de votre religion ou de votre couleur de peau
6. Parce que le médecin pensait que vous ne pourriez pas payer
7. A cause de votre santé
8. [Ne sait pas]
9. [Ne veut pas le dire]
10. Autres, précisez :…….

Si Q112=1

(Si a été victime d'un refus de soins)

Q114. De quel(s) professionnel(s) de santé s'agissait-il ?

CITER
(Plusieurs réponses possibles)

1. Un médecin généraliste
2. Un médecin spécialiste
3. Un dentiste
4. Un pharmacien
5. Un kinésithérapeute
6. Une sage-femme
7. Quelqu'un d'autre, précisez :……
8. [Ne sait pas]
9. [Ne veut pas le dire]

Fin de questionnaire

Nous allons terminer cet entretien avec une dernière question

Q115B - Au cours de la semaine écoulée, c'est-à-dire depuis le [PROG : insérer (date du jour - 7 jours)] dernier, vous êtes-vous rendu dans d'autres lieux de soutien, [à Paris / à Bordeaux ou dans les villes alentours] pour … *CITER – POSER EN OUI/NON*
(Plusieurs réponses possibles)

1. Obtenir de l'aide dans vos démarches administratives
2. Obtenir de la nourriture, des vêtements, des objets du quotidien…
3. Vous laver,…
4. Assister à un cours de Français
5. Faire du sport, des loisirs, pratiquer une activité culturelle,…
6. Avoir un accès à internet
7. Avoir une consultation médicale (pour vous ou l'un de vos proches)
8. Récupérer votre courrier ou remplir des formalités pour avoir une domiciliation administrative
9. Dans un autre lieu de soutien, précisez :……
10. Non, dans aucune autre structure
11. [Ne sait pas]
12. [Ne veut pas le dire]

Q116
Si Q115B=1
(S'il s'agit d'une structure qui propose de l'aide aux démarches administratives

Pour obtenir de l'aide dans vos démarches administratives, de quelles structures précisément s'agissait-il ?

Consigne : Si vous ne trouvez pas le lieu où vous êtes allé dans la liste, cochez la case « autre » et indiquez le nom et l'endroit où il se trouve (l'adresse même approximative, le quartier,…) Prog :

- [insérer liste fichier excel liste_structuresQ115_Q116 - onglet Q115B=1]
- Offrir la possibilité de faire une recherche rapide sur le nom et sur l'adresse - Offrir la possibilité de saisir 5 autres

Si Q115B =2

(S'il s'agit d'une structure qui propose de la nourriture, des vêtements, des objets du quotidien)

Pour obtenir de la nourriture, des vêtements, des objets du quotidien, de quelles structures précisément s'agissait-il ?

Consigne : Si vous ne trouvez pas le lieu où vous êtes allé dans la liste, cochez la case « autre » et indiquez le nom et l'endroit où il se trouve (l'adresse même approximative, le quartier,…) Prog :

- [insérer liste fichier excel liste_structuresQ115_Q116 - onglet Q115B=2]
- Offrir la possibilité de faire une recherche rapide sur le nom et sur l'adresse - Offrir la possibilité de saisir 5 autres

Si Q115B=3

(S'il s'agit d'une structure pour vous laver)

Pour vous laver, de quelles structures précisément s'agissait-il ?

Consigne : Si vous ne trouvez pas le lieu où vous êtes allé dans la liste, cochez la case « autre » et indiquez le nom et l'endroit où il se trouve (l'adresse même approximative, le quartier,…) Prog :

- [insérer liste fichier excel liste_structuresQ115_Q116 - onglet Q115B=3]
- Offrir la possibilité de faire une recherche rapide sur le nom et sur l'adresse - Offrir la possibilité de saisir 5 autres

Si Q115B=4

(S'il s'agit d'une structure pour assister à un cours de français)

Pour assister à un cours de français, de quelles structures précisément s'agissait-il ?

Consigne : Si vous ne trouvez pas le lieu où vous êtes allé dans la liste, cochez la case « autre » et indiquez le nom et l'endroit où il se trouve (l'adresse même approximative, le quartier,…) Prog :

- [insérer liste fichier excel liste_structuresQ115_Q116 - onglet Q115B=4]
- Offrir la possibilité de faire une recherche rapide sur le nom et sur l'adresse - Offrir la possibilité de saisir 5 autres

Si Q115B=5

(S'il s'agit d'une structure pour faire du sport, des loisirs, pratiquer une activité culturelle)

Pour faire du sport, des loisirs, pratiquer une activité culturelle, de quelles structures précisément s'agissait-il ?

Consigne : Si vous ne trouvez pas le lieu où vous êtes allé dans la liste, cochez la case « autre » et indiquez le nom et l'endroit où il se trouve (l'adresse même approximative, le quartier,…) Prog :

- [insérer liste fichier excel liste_structuresQ115_Q116 - onglet Q115B=5]
- Offrir la possibilité de faire une recherche rapide sur le nom et sur l'adresse - Offrir la possibilité de saisir 5 autres

Si Q115B=6

(S'il s'agit d'une structure pour avoir un accès à internet)

Pour avoir un accès à internet, de quelles structures précisément s'agissait-il ?

Consigne : Si vous ne trouvez pas le lieu où vous êtes allé dans la liste, cochez la case « autre » et indiquez le nom et l'endroit où il se trouve (l'adresse même approximative, le quartier,…) Prog :

- [insérer liste fichier excel liste_structuresQ115_Q116 - onglet Q115B=6]
- Offrir la possibilité de faire une recherche rapide sur le nom et sur l'adresse - Offrir la possibilité de saisir 5 autres

Si Q115B=7

(S'il s'agit d'une structure pour avoir une consultation médicale)

Pour une consultation médicale, de quelles structures précisément s'agissait-il ?

Consigne : Si vous ne trouvez pas le lieu où vous êtes allé dans la liste, cochez la case « autre » et indiquez le nom et l'endroit où il se trouve (l'adresse même approximative, le quartier,…) Prog :

- [insérer liste fichier excel liste_structuresQ115_Q116 - onglet Q115B=7]
- Offrir la possibilité de faire une recherche rapide sur le nom et sur l'adresse - Offrir la possibilité de saisir 5 autres

Si Q115B=8

(S'il s'agit d'une structure pour récupérer votre courrier ou remplir des formalités pour avoir une domiciliation administrative)

Pour récupérer votre courrier ou remplir des formalités pour avoir une domiciliation administrative, de quelles structures précisément s'agissait-il ?

Consigne : Si vous ne trouvez pas le lieu où vous êtes allé dans la liste, cochez la case « autre » et indiquez le nom et l'endroit où il se trouve (l'adresse même approximative, le quartier,…) Prog :

- [insérer liste fichier excel liste_structuresQ115_Q116 - onglet Q115B=8]
- Offrir la possibilité de faire une recherche rapide sur le nom et sur l'adresse - Offrir la possibilité de saisir 5 autres

Si Q115B=9

(S'il s'agit d'une structure qui propose d'autres services)

Pour ces autres services, de quelles structures précisément s'agissait-il ?

Précisez nom et adresse : |_____| |_____|

Nous vous remercions de votre participation. Ce questionnaire est maintenant terminé.

Afin de voir si votre santé a changé et comment votre situation personnelle a évolué, nous aurons besoin de vous interroger à nouveau dans 6 mois. Vous devrez alors répondre à une quinzaine de questions par internet. Pour vous remercier de votre participation, nous vous transmettrons par email à cette occasion, un chèque cadeau de 15 €.

Q118_A : A quelle est adresse e-mail pourrons-nous vous contacter ?

Adresse e-mail : _ _ _ _ _ _ _ _ _ _ _@_ _ _ . _ _ _

Q118_B : Si vous préférez, vous pouvez nous donner un numéro de téléphone portable : |_|_|.|_|_|.|_|_|.|_|_|.|_|_|

Je vous rappelle que conformément à ce qu'impose la loi Informatique et Libertés, les informations que vous venez de me communiquer ne seront jamais utilisées à d'autres fins qu'à des fins de recherche dans le cadre de ce projet et que vos coordonnées et informations personnelles ne seront pas conservées et ne seront jamais transmises à un tiers.

Si vous souhaitez plus d'information sur cette enquête et si vous souhaitez consulter les résultats, ils seront disponibles sur le site de l'Irdes, à l'adresse : www.irdes.fr/premiers-pas

Merci au revoir.

Appréciation enquêteur

Q117 : Ce questionnaire a été…

NE PAS POSER

1. Posé par un enquêteur
2. Lu et rempli directement par l'enquêté

Q119 : Dans l'ensemble, avez-vous eu le sentiment que la personne comprenait les questions ?

NE PAS POSER

Enquêteur : à coder sans poser la question

1. Jamais
2. Presque jamais
3. Parfois
4. Souvent
5. Très souvent
6. Toujours
7. [Ne sait pas]

CMT : Enquêteur, notez ici vos commentaires :

……

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