

Supplementary material

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Ethnic disparities in the use of restrictive practices in adult mental health inpatient settings: a scoping review

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Table 1 Search subject headings and keywords combined with Boolean operators (OR/AND) in all the selected databases

Block	CINAHL with Full Text (EBSCO)	PubMed (NCBI)	PsycINFO (ProQuest)	Scopus (Elsevier)	Embase (Elsevier)
Population: Descriptors of ethnicity	MH "Ethnic Groups+" OR MH "Immigrants+" OR Ethnic OR Refugee OR Ethnology OR migrant OR Transient OR Emigrant OR Immigrant OR minority OR race OR continental population OR Ethnological OR Ethnicity	Ethnicity OR Refugee OR Race OR Races OR emigrant OR immigrant OR migrant OR Transient OR Minority OR continental population	MAINSUBJECT.EXACT.EXPLODE("Racial and Ethnic Groups") OR MAINSUBJECT.EXACT.EXPLODE("Racial and Ethnic Differences") OR Ethnology OR Ethnic OR refugee OR Ethnicity OR Ethnological OR "continental population*" OR race OR Emigrant OR immigration OR immigrant OR Transient OR migrant Or migration OR minorities OR minority	Ethnology OR Ethnic OR Ethnicity OR Ethnological OR refugee OR continental W/1 population OR emigrant OR immigrant OR transient OR migrant OR race OR minority	'ethnic group'/exp OR ethnic OR ethnicity OR ethnology OR ethnological OR 'refugee'/exp OR refugee\$ OR 'ancestry group'/exp OR continental NEAR/1 population OR Race\$ OR 'migrant'/exp OR migrant\$ OR emigrant\$ OR immigrant\$ OR 'migration'/exp OR transient\$ OR 'minority group'/exp OR minority OR minorities
Concept: Restrictive practices	Seclusion OR coercion OR Restraint OR Coercive OR compulsory OR involuntarily OR involuntary OR forced medic* OR Tranquiliz*	Patient isolation OR coercion OR restraint OR seclusion OR coercive OR involuntarily OR involuntary OR compulsory OR forced medic OR tranquilize	Seclusion OR Coercion OR Restraint OR Coercive OR compulsory OR involuntarily OR Involuntary OR forced medication OR forced medical OR Tranquiliz*	Seclusion OR Coercion OR Restraint OR Coercive OR compulsory OR involuntarily OR Involuntary OR Forced W/1 medic* OR Tranquiliz*	Seclusion OR coercion OR restraint OR Coercive OR involuntarily OR involuntarily OR compulsory OR forced NEAR/1 medic* OR tranquiliz*
Context: Mental health inpatient settings	MH "Forensic psychiatry+" OR Psychiatry OR psychiatric OR secure service OR secure setting OR forensic service OR forensic setting OR Mental health	Psychiatry OR Mental health OR Psychiatric Department, Hospital OR Hospitals, Psychiatric OR secure service OR secure setting OR forensic service OR forensic setting OR psychiatric service	Psychiatry OR Psychiatric OR secure service OR secure setting OR forensic service OR forensic setting OR mental health	Psychiatry OR Psychiatric OR secure W/1 service OR secure W/1 setting OR forensic W/1 service OR forensic W/1 setting OR mental W/1 health	'Psychiatry'/exp OR Psychiatry OR 'mental health'/exp OR 'mental health service'/exp OR mental NEAR/1 health OR 'mental hospital'/exp OR psychiatric OR secure NEAR/1 service\$ OR secure NEAR/1 setting\$ OR forensic NEAR/1 service\$ OR forensic NEAR/1 setting\$

		OR psychiatric setting			
Total hits	295	3,158	1,246	821	1,303
Total hits with limitations	185	1,429	606	403	779

Limitations: language, English; publication year, 2010 to present.

Table 2 Ethnicity and gender as described in all included studies. NR, Not reported. *Review studies. MD, missing data about gender

Author(s) and year	Most accurate description of ethnicity (n.)	Gender	
		Female	Male
Alda Díez et al. (2010)	Latin Americans (n = 40), Maghrebian (n = 20), Sub-Saharanians (n = 22), Eastern Europeans (n = 20) and native Spaniards (n = 102)	100	104
Bak et al. (2014)	Danish/Norwegian (n = NR) and other (n = NR)	NR	NR
Bak et al. (2015)	Danish/Norwegian (n = NR) and other (n = NR)	NR	NR
Beames and Onwumere (2021)*	Ethnicity (n = 9), migrant status (n = 1), religion (n = 1) and no description of ethnicity (n = 9)	NR	NR
Beghi et al. (2013)*	Ethnicity (n = 6), race (n = 2), country of origin (n = 1) and no description of ethnicity (n = 40)	NR	NR
Bennewith et al. (2010)	White (n = 564), Black (n = 138), Asian (n = 47) and mixed ethnicity (n = 24)	NR	NR
Bilanakis et al. (2010)	Greek (n = 262) and other (n = 20)	126	156
Bowers et al. (2012)	White (n = 355) and NR (n = 167)	NR	NR
Bowers et al. (2010)	White (n = NR), Irish (n = NR), Caribbean (n = NR), African (n = NR) and Asian (n = NR)	NR	NR
Collazos et al. (2021)	Latin Americans (n = 180), North Africans (Maghreb region) (n = 52), Asians (n = 23), Eastern Europeans (n = 34), Western Europeans (n = 41) and native Spaniards (n = 67)	199	170
Cullen et al. (2018)	White (n = 1,148), Black African/Caribbean (n = 2,437) and other (n = 414)	1,273	2,729
Currier et al. (2011)	White (n = 101) and other (n = 50)	68	83
Drown et al. (2018)	Māori (n = NR) and non-Māori (n = NR)	NR	NR
Flammer et al. (2013)	German (n = 2,843), others from the European Community (n = 102), Turkish (n = 110), others outside the European Community (n = 106) and missing data (n = 228)	1,920	1,469
Gowda et al. (2018)	Hindu (n = 181), Muslim (n = 12) and Christian (n = 7)	90	110
Happell and Koehn (2010)	Indigenous status (n = 337) and non-indigenous status (n = 2,907)	1,168	2,076
Hendryx et al. (2010)	Black (n = 48), Hispanic (n = 68), Native American (n = 49), White (n = 1,074) and NR (n = 27)	479	787
Hui et al. (2016)*	Ethnicity (n = 1), ethnic groups (n = 1) and no description of ethnicity (n = 16)	NR	NR
Husum et al. (2010)	Norwegian background (n = 3,077), not Norwegian background (n = 350) and NR (n = 35)	1,710	1,752
Jury et al. (2019)	European or other (n = 6501), Māori (n = 3767), Pasifika (n = 651) and Asian (n = 422)	5,565	5,776
Knutzen et al. (2013)	Asian (n = 35), Africa (n = 27), Southern Europe (n = 13), Northern Europe outside Scandinavia (n = 6), Scandinavia (n = 3), Canada (n = 1) and native Norwegians (n = 286)	165	206
Knutzen et al. (2014)	Immigrant background (n = 86), native Norwegians (n = 283) and NR (n = 4)	166	207
Knutzen et al. (2011)	Immigrant background (n = 149), native Norwegians (n = 594) and NR (n = 6)	365	384
Lai et al. (2019)	Māori (n = 3,332) and non-Māori (n = 7,395)	5,182	5,545
Lay et al. (2011)	Swiss national (n = 7,592) and foreign national (n = 2,106)	4,941	4,754
McLeod et al. (2017)	Māori (n = 1,944) and non-Māori non-Pacific (n = 5,295)	NR	NR
Mellow et al. (2017)*	Indigenous Australians (n = 1) and no description of ethnicity (n = 10)	NR	NR
Miodownik et al. (2019)	Ashkenazic origin (n = 69), Sephardic origin (n = 62), Ethiopian (n = 13), Muslim (n = 19) and other (n = 13)	0	176

Norredam et al. (2010)	Eastern Europe (n = 4,136), Former Yugoslavia (n = 17,263), north Africa (n = 7,514), Iraq (n = 5,983), Sub-Saharan Africa (n = 2,497), West (n = 6,188), Middle East (n = 12,182), Asia (n = 6,698) and native Danes (n = 249,839)	171,283	141,017
Opitz-Welke and Konrad (2012)	Turkey (n = 9), Poland (n = 7), rest of Europa (n = 9), Lebanon (n = 7), Iran (n = 2), Tunisia (n = 2), other non-European countries (n = 9) and native Germans (n = 62)	0	107
Sambrano and Cox (2013)	Aboriginal (n = 2), and Aboriginal and Torres Strait Islander (n = 1)	1	2
Tarsitani et al. (2013)	Romania (n = 23), Bulgaria (n = 5), Poland (n = 4), rest of Europe (n = 8), Ukraine (n = 7), Russia (n = 5), Moldavia (n = 4), North Africa (n = 10), rest of Africa (n = 13), Bangladesh (n = 4), rest of Asia (n = 7), Latin America (n = 10) and native Italians (n = 100)	116	84
Taylor et al. (2012)	White (n = 1,877), African American (n = 1,766) and other or missing (n = 120)	1,691	2,067
Thomsen et al. (2017)	1) African (n = 558), America (n = 432), Eastern Mediterranean (n = 4,444), Europe (n = 104,234), South-East Asia (n = 648), Western Pacific (n = 470) and missing data (n = 1,447); 2) immigrants (n = 10,799), refugees (n = 120), native Danes (n = 100,011) and missing data (n = 1,303)	56,476	55,757
Trauer et al. (2010)	1) Australian-born (n = 275) and foreign born (n = 77); 2) indigenous status (n = 7) and non-indigenous status (n = 345)	139	213
Tyrer et al. (2012)	New Zealand Pakeha (n = 186), Māori (n = 44), European (n = 16) and other (n = 8)	116	138
van de Sande et al. (2017)	Western background (n = 612) and other (n = 266)	340	538
Verlinde et al. (2017)	Non-western descent (n = NR) and NR (n = NR)	1,663	1,579

Table 3 Definitions of restrictive practices

Author(s) and year	Definition of manual restraint
Beames and Onwumere (2021)	Manual holding.
Gowda et al. (2018)	At least one or more of the patient's limbs/body part is held by staff.
Hui et al. (2016)	A patient is held by at least one member of staff.
Norredam et al. (2010)	Restrain a patient physically.
Thomsen et al. (2017)	Being held by staff.
Author(s) and year	Definition of mechanical restraint
Bak et al. (2014)	The use of restraining straps, belts or other equipment to restrict movement.
Bak et al. (2015)	The use of restraining straps, belts or other equipment to restrict movement.
Beames and Onwumere (2021)	Use of devices such as handcuffs.
Bilanakis et al. (2010)	The use of belts to secure a patient to a bed.
Currier et al. (2011)	The use of mechanical devices to restrict or control a patient's movement.
Flammer et al. (2013)	The use of belts to fix the patient to the bed.
Gowda et al. (2018)	At least one or more of the patient's limbs are fixated by a mechanical appliance.
Hui et al. (2016)	A device, such as a belt, is attached to a patient.
Husum et al. (2010)	Strapping a patient to a bed with mechanical devices (belts).
Knutzen et al. (2013)	Different types of belts (for restraint in bed or used outside bed for arms and feet only).
Knutzen et al. (2014)	Different types of belts (for restraint in bed or outside of bed for arms and feet only).
Knutzen et al. (2011)	Different types of belts (for restraint in bed or used outside bed for arms and feet only).
Miodownik et al. (2019)	The use of belts attached to a bed in a special single-bed room in order to restrict movement of each of the patient's arms and legs.
Norredam et al. (2010)	Restrain a patient with the use of a belt.
Tarsitani et al. (2013)	Physical restraint by belt.
Thomsen et al. (2017)	Fixation by a mechanical appliance, which includes immobilization with leather belts around the waist and/or wrist and ankle cuffs. Gloves are also used, but the use is seldom.
Author(s) and year	Definition of rapid tranquilisation
Beames and Onwumere (2021)	Pharmacological measures.
Flammer et al. (2013)	The application of medication by force with "hands on".
Gowda et al. (2018)	The forceful injection of psychotropic medication either intramuscularly or intravenously against the patient's consent/will.
Hui et al. (2016)	The administration of rapid tranquillisation via intramuscular injection against a patient's will.
Knutzen et al. (2013)	Single doses of medications with an antipsychotic or sedative effect that are given by injection or taken orally.
Knutzen et al. (2014)	Single doses of medications that have an anaesthetic or sedative effect and are given by injection or taken orally.
Knutzen et al. (2011)	Single doses of medications with an antipsychotic or sedative effect that are given by injection or taken orally.
Thomsen et al. (2017)	Administration of acute sedative medication.
Verlinde et al. (2017)	The application of intramuscular medication by force against the patient's will.
Author(s) and year	Definition of seclusion
Beames and Onwumere (2021)	The containment of a person often in a locked room.
Bilanakis et al. (2010)	Placing a patient into an empty, locked room.

Bowers et al. (2012)	Isolated in a locked room.
Bowers et al. (2010)	Isolation of a patient in a locked room.
Cullen et al. (2018)	The patient is isolated in a locked room and observed at regular intervals.
Drown et al. (2018)	Where a consumer is placed alone in a room or area, at any time and for any duration, from which they cannot freely exit.
Flammer et al. (2013)	Bringing the patient into a locked room where they are alone and able to move freely but unable to leave, due to the locked door.
Gowda et al. (2018)	Placement of an individual patient in a locked room against patient's will to disengage from harmful behavior displayed by an individual, temporarily restricting contact with the external world and it leads to restriction/loss of patient's freedom and liberties.
Hendryx et al. (2010)	The involuntary confinement of a patient alone in a designated room where the patient was prevented from leaving.
Hui et al. (2016)	The placement of a patient alone in a locked room that has been specifically designed for this purpose.
Husum et al. (2010)	Confining a patient in a single room or in a separate unit or area inside the ward, accompanied by staff.
Jury et al. (2019)	Placing a person alone in a room or area, at any time and for any duration, from which they cannot freely exit.
Knutzen et al. (2011)	Detention for a short period (up to two hours) behind a locked or closed door without a staff member present.
Lai et al. (2019)	Where a consumer is placed alone in a room or area, at any time and for any duration, from which they cannot freely exit.
Lay et al. (2011)	Placement and retention of an inpatient in a bare room.
McLeod et al. (2017)	Placed by themselves in an area or room from which they cannot freely exit.
Mellow et al. (2017)	Supervised confinement.
Miodownik et al. (2019)	Placing the patient in a locked upholstered room.
Taylor et al. (2012)	A patient involuntarily confined to a room or area on the hospital unit.
Tyrer et al. (2012)	Isolating individuals in a locked room from which they 'cannot freely exit'.
Trauer et al. (2010)	The sole confinement of a person at any hour of the day or night in a room of which the doors and windows are locked from the outside.
Verlinde et al. (2017)	Bringing the patient into a locked room where he/she is alone and able to move around. The patient is unable to leave due to a locked door.
Author(s) and year	Definition of restraint
Lay et al. (2011)	Measures prearranged to confine a patient's bodily movements.

Table 4 Multiple restrictive practices. *Studies dividing ethnicity into more than one category

Restrictive practices (n.)	Description of ethnicity Main categories (n.)	References	Definition of the restrictive practice
Manual restraint and mechanical restraint (n = 3)	Mixed categories (n = 1)	Hendryx et al. (2010)	No
	Religion (n = 1)	Gowda et al. (2018)	Yes
	Review (n = 1)	Beames and Onwumere (2021)	Yes
Manual restraint, mechanical restraint and rapid tranquillisation (n = 3)	Geographical categories (n = 1)	Thomsen et al. (2017)*	Yes
	Migrants and native nationals (n = 3)	Collazos et al. (2021) Norredam et al. (2010) Thomsen et al. (2017)*	No Yes (manual and mechanical restraint only) Yes
Manual restraint, mechanical restraint and seclusion (n = 1)	Mixed categories (n = 1)	Taylor et al. (2012)	Yes (seclusion only)
Mechanical restraint and rapid tranquillisation (n = 3)	Migrants and native nationals (n = 3)	Knutzen et al. (2013)	Yes
		Knutzen et al. (2014)	Yes
		Knutzen et al. (2011)	Yes
Mechanical restraint, rapid tranquillisation and seclusion (n = 2)	Migrants and native nationals (n = 2)	Flammer et al. (2013)	Yes
		Knutzen et al. (2011)	Yes
Mechanical restraint and seclusion (n = 2)	Migrants and native nationals (n = 1)	Bilanakis et al. (2010)	Yes
	Mixed categories (n = 1)	Miodownik et al. (2019)	Yes
Restraint and seclusion (n = 3)	Migrants and native nationals (n = 2)	Lay et al. (2011)	Yes
		Opitz-Welke and Konrad (2012)	No
	Review (n = 1)	Beghi et al. (2013)	No
Restraint, rapid tranquillisation and seclusion (n = 2)	Migrants and native nationals (n = 1)	Opitz-Welke and Konrad (2012)	No
	Mixed categories (n = 1)	Bennewith et al. (2010)	No