US
UNIVERSITY OF SUSSEX

Sussex Research

Cause, consequence or coincidence: the relationship between psychiatric disease and metabolic syndrome

Gordon Ferns

Publication date
01-12-2018

Licence
This work is made available under the CC BY-NC-ND 4.0 licence and should only be used in accordance with that licence. For more information on the specific terms, consult the repository record for this item.

Document Version
Published version

Citation for this work (American Psychological Association 7th edition)
Ferns, G. (2018). *Cause, consequence or coincidence: the relationship between psychiatric disease and metabolic syndrome* (Version 2). University of Sussex. https://hdl.handle.net/10779/uos.23456471.v2

Published in
Translational Metabolic Syndrome Research

Link to external publisher version
https://doi.org/10.1016/j.tmsr.2018.04.003

Copyright and reuse:
This work was downloaded from Sussex Research Open (SRO). This document is made available in line with publisher policy and may differ from the published version. Please cite the published version where possible. Copyright and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners unless otherwise stated. For more information on this work, SRO or to report an issue, you can contact the repository administrators at sro@sussex.ac.uk. Discover more of the University's research at https://sussex.figshare.com/

Table 1 Reported prevalence of Metabolic Syndrome in Mixed Groups of Patients with Serious Mental Illness

Reference	Suvisaari et al [27]	Jin et al [32]	Gossell-Williams et al [40]	Ko et al [43]	Solia et al [31]	Hussain et al [35]	Alosaimi et al [36]	Saloojee et al [42]
Date	2007	2009	2012	2013	2015	2017	2017	2017
Country	Finland	USA	Jamaica	South Korea	Italy	India	Saudi Arabia	South Africa
Setting	Nationally Represent-ative	OP on anti-psychotics	IP	IP and OP	IP	IP	IP	IP on anti-psychotics
N	8028	203	38	1103	125	213	992	232
Age Group	>30	>40						
Design	CS	CS	CS	CS		CS		CS
MS Definition	ATPIII	AHA	IDF/ AHA	ATPIIIa iDF	ATPIIIa	ATPIII		JIS
%MS								
Control	30.1							
SMI			28.9	ATP 43.9 IDF 40.1	35.2	34.7	41.2	F37.7 M10.3
Schizophrenia	36.2	60						
NA Psychosis	41.2							
Aff Psychosis	25.0					31.0		
Depression						43.3		
BD						37.9		
PTSD		72						
Dementia		56						
Anti-Psych								
High potency	52.1							
Low Potency	39.0							
Atypical	23.4					63.6		

Aff=Affective; AHA=American Heart Association; ATPIII= National Cholesterol Education Programme, Adult Treatment Panel-III ; ATPIIIa= adapted ATP-III; Anti-Psych=Antipsychotics; BD=Bipolar Disease ; CS=Cross-sectional; IDF= International Diabetes Federation; IP=In patient; JIS= Joint Interim Statement; MS=Metabolic syndrome; NA=non-affective; OP=Out- patient; PTSD=post-traumatic stress disorder; SMI=serious mental illness

Table 2 Reported prevalence of Metabolic Syndrome in Patients with Schizophrenia

Reference	McEvoy et al [50]	De Hert et al [51]	Birkenaeas et al [48]	Moreno et al [49]	Huang et al [57]	Sugawara et al [58]	Yazici et al [56]	Lee et al [59]	Sweileh et al [61]	Grover et al [52]	Nyboe et al [54]	Garcia-Rizo et al [53]	Seow et al [60]
Date	2005	2006	2007	2007	2009	2010	2011	2012	2012	2014	2015	2017	2017
Country	USA	Belgium	Norway	Spain	Taiwan	Japan	Turkey	Singapore	Palestine	India	Denmark	Spain	Singa pore
Setting	Baseline data from clinical trial matched with NHANESIII	IP and OP	OP and IP versus representative community sample	IP	OP and IP	IP	OP and IP	OP and IP	OP	IP >30% on Anti-psychotics	Baseline data from inter -vention trial	IP	IP
N	1460S;	430	163S; 110 BD; 18770 C	136	650	1186 S 886 C	319	100S 300C	250	143	99FES 50 C	84 psych-osis 98 C	108
Age Group			18-65	>18	>18	>18	18-75	>21	>16	>20			>21
Design	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	FES CS	FES CS	CS
MS Definition	ATPIII ATPIIIa	ATPIII ATPIIIa IDF	ATPIII	ATPIII	ATPIII For Asians	ATPIIIa	ATPIII ATPIIIa IDF	AHA	ATPIII	IDF	IDF		ATPIIIa AHA
%MS													
Control		14				~13.0		~16				4	
Schizophrenia	40.9 42.7	28.4 32.3 36	29.7	36.0	34.9	27.5	34.2 37 41.7	46	43.6	36.4		6	26.9 51.9
BD			21.5										

AHA=American Heart Association; ATPIII;=National Cholesterol Education Programme, Adult Treatment Panel-III; ATPIIIa= adapted ATP-III ; BD=Bipolar Disease; CS=Cross-sectional; FES=First episode schizophrenia; IDF=International Diabetes Federation; IP=In patient; MS=Metabolic syndrome; OP=Out- patient; PTSD=post-traumatic stress disorder; SMI=serious mental illness

Table 3 Reported prevalence of Metabolic Syndrome in Patients with Bipolar Disease and Depression

Reference	Basu et al [76]	Bermudes et al [98]	Van Winkel et al [79]	Chang et al [81]	Guan et al [83]	Lee et al [84]	Ezzaher et al [82]	Kim et al [100]	Lasserre et al [97]
Date	2004	2006	2008	2009	2010	2010	2011	2015	2017
Country	USA	USA	Belgium	Taiwan	China	Korea	Tunisia	Korea	Switzerland
Setting	Drug Trial	IP	OP and IP	OP	OP and IP	OP	OP and IP	OP	OP
N	33	122	60 majority on Anti-psychotics	117 treated with valproate, lithium or both	148 BP 65 C	152 BP	130, >70% treated with mood stabilizers	13745	2813
Age Group	>21	>18	>21	>21	>21	>21	>18	40-59	35-66
Design	CS	CS	CS	CS	CS	CS	CS	Cohort Study	Cohort Study
MS Definition	WHO	ATPIII	ATPIII ATPIIIa IDF	IDF	Chinese Med Assoc	ATPIII AHA IDF	ATPIIIa		
%MS									
Control						~10.0			
Depression		38.6							
BD	42.5		16.7 18.3 30.0	33.9	11.5	25.0 27.0 25.7	26.1		

AHA=American Heart Association; ATPIII;=National Cholesterol Education Programme, Adult Treatment Panel-III ; ATPIIIa= adapted ATP-III ; BD=Bipolar Disease ; CS=Cross-sectional; IDF=International Diabetes Federation; IP=In patient; MS=Metabolic syndrome ; OP=Out- patient; PTSD=post-traumatic stress disorder; SMI=serious mental illness

Table 4 Reported prevalence of Metabolic Syndrome in Patients with other Serious Mental Illness and on treatment with Antipsychotics

Reference	Linnville et al [109]	Heppner et al [108]	Elmslie et al [125]	Margari et al [122]	Ojala et al [116]	Taylor et al [129]	Bruner o et al [119]	Correll et al [117]	Krane-Gartiser et al [118]	Correll et al [127]	Saddichh a et al [131]	Vandenberg he et al [142]	Popovic et al [143]	Munsh i et al [114]	Lin et al [115]	Eskelinen et al [144]
Date	2011	2009	2009	2013	2008	2010	2009	2006	2011	2008	2008	2015	2015	2015	2015	2015
Country	USA	USA	New Zealand	Italy	Finland	Canada	Austral ia	USA	Denmark	USA	India		Serbia	Canad a	Taiwan	Finland
Setting	OP	OP	OP		Forensic Psychiat ry IP	IP	OP	IP	OP	IP			IP		IP	OP
N	351 veterans With no other Psychiat ric Co-morbidit y	233 veterans Mostly male and white	60 BD on val-proate 60 non-psychia -tric control s	83 Schizophren ia 24 BD 27 MDD 14 Other 18 77 C internal med	221	54 Mania or Depres sion 104 NHANE SIII control data	73 patient s on clozapi ne	367	170 Patients on anti-psychoti cs 3303 controls	111 Schizo phrenia 74 BD On anti-psychoti cs	99	351	93 patients with schizophren ia on treatment with olanzapine	50 Patient s 80% on SGA	329 patient s with schizo-phreni a on SGA	276 patients with schizophren ia High % on clozapine
Age Group	>~50			>21		16-40							>21			
Design	CS but 25 years after initial recruitm ent	CS	Matche d Control CS			Matche d control Cohort			Matched control CS		DB Controlle d trial		CS case-control	CS	CS	CS
MS Definitio n	ATPIIIa	ATPIII				ATPIII	IDF		IDF	ATPIII ATPa	ATPIIIa IDF		IDF	IDF	IDF	IDF
%MS														48		
Control	25		32			Baselin e 19 Follow-up 14			29.6							
SMI							62					22 at baseline				
Schizo-phrenia										45.9 54	10 18				23.7	58.7

NA Psychosis																
Aff Psychosis																
Depression		29				Baseline 15 Follow-up 17										
BD			50			Baseline 5 Follow-up 15				43.2 54						
PTSD	25	34 (46 if plus MDD)														
Anti-Psych								37	48			32 after 1 year on treatment	34.4			

AHA=American Heart Association; ATPIII=National Cholesterol Education Programme, Adult Treatment Panel-III ; ATPIIIa= adapted ATP-III ; BD=Bipolar Disease; CS=Cross-sectional; FES=First episode schizophrenia; IDF=International Diabetes Federation; IP=In patient; MS=Metabolic syndrome; OP=Out- patient; PTSD=post-traumatic stress disorder; SMI=serious mental illness

Table 5 Impact of specific Antipsychotic drugs on weight gain

Risk of weight gain	Drugs
High	Clozapine, Olanzapine, Quetiapine, Zotepine
Moderate	Amisulpride, Asenapine, Iloperidone, Paliperidone, Quetiapine, Risperidone and Sertindole
Low	Aripiprazole, Lurasidone and Ziprasidone