BEST in Mental Health
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Best Evidence Summaries of Topics in Mental Healthcare

BEST *in* MH *clinical question-answering service*

Question

"In adults with schizophrenia, what is the association between affective symptoms and subsequent violence towards others and themselves?"

Clarification of question using *PRO* structure

Patients:	Adults with schizophrenia
Risk Factor:	Affective Symptoms
Outcome:	Violence towards others or themselves

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Clinical and research implications

No definite clinical recommendations can be made from the available evidence. Three primary studies were found, all had observational study designs and only one study was at low risk of bias. The best quality study was a case-control study which concluded that psychotic and depressive symptom scores were predictors of suicide risk. The other studies concluded that psychotic, affective and hostility symptoms were higher in people experiencing panic attacks; and that threat control over-ride symptoms and depression were associated with aggressive behaviour. It appears that more good quality studies, ideally with an adequate sample size and prospective design, are needed to evaluate the relationship between affective symptoms and violent behaviour in schizophrenia.

What does the evidence say?

Number of included studies/reviews (number of participants)

Three primary studies met the inclusion criteria for this question. One was a cross-sectional study of 32 participants (Chen, 2001); one was a prospective cohort study of 251 participants (Hodgins, 2011) and the third was a case-control study of 81 participants (McGirr, 2006).

Main Findings

The cross-sectional study included eight participants with panic attacks and 24 without. Those with panic attacks had significantly higher HDRS scores (mean 18.5 vs. 9.0, $p < 0.01$) and significantly lower GAF scores (mean 38.3 vs. 56.0, $p < 0.05$) as well as significantly higher hostility scores on the BPRS (75% vs. 25%, $p = 0.01$).

The cohort study found that overall the risk of aggressive behaviour was significantly increased with an increase in TCO symptoms ($p = 0.018$); the number of positive symptoms ($p = 0.05$); and an increase in HRSD score ($p = 0.029$). For participants with two or fewer positive symptoms, the number of TCO symptoms and HSRD score were significantly associated with aggressive behaviour. However for those with three or more positive symptoms, no association between symptoms and aggressive behaviour was found.

The case-control study which compared symptoms between suicide cases and controls from psychiatric clinics, found that moderate to severe current psychotic symptoms ($p < 0.01$), current depressive disorder NOS ($p < 0.05$) and cluster C symptoms ($p < 0.05$) were all significant predictors of suicide.

Authors Conclusions

Increased hostility and anger spells may be symptoms of panic attacks in patients with chronic schizophrenia, which are overlooked by psychiatrists (the cross-sectional study by Chen).

The florid psychotic symptoms stage of schizophrenia is associated with an increased risk of aggressive behaviour; once positive symptoms are lowered this risk does not disappear. An assessment of the risk of aggressive behaviour is needed to identify risk factors and develop a treatment plan to target these risk factors (the cohort study by Hodgins).

The case-control study (McGirr) concluded that behavioural mediators of suicide risk, such as impulsive-aggressive behaviours, do not play a role in schizophrenic suicide, contrary to findings in other clinical populations. Further research is needed into the interaction between personality, psychotic disorders and suicide.

Reliability of conclusions/Strength of evidence

The cross-sectional study was considered to be at high risk of bias. It was also a small study with only 8 participants experiencing the outcome of interest which limits the reliability of the statistical analyses. The cohort study had an unclear risk of bias as details of the methods of outcome assessment, and numbers withdrawn by the second assessment were not reported. This was a larger study and the analysis methods and results were well-reported. The case-control study was at a low risk of bias but was also a small study, which may limit the conclusions of the analysis. As all three studies were observational with an increased risk of bias due to the nature of their design, and two also had small sample sizes, the available evidence may not be reliable or generalizable.

What do guidelines say?

Neither NICE nor SIGN guidelines discuss the association of affective symptoms and violence in adults with schizophrenia.

Date question received: 03/03/2014
Date searches conducted: 12/03/2014
Date answer completed: 04/04/2014

References

Chen, C-Y., Liu, C-Y. and Yang, Y-Y. (2001) Correlation of panic attacks and hostility in chronic schizophrenia. *Psychiatry and Clinical Neurosciences 55* pp.383-387.

Hodgins, S. and Riaz, M. (2011) Violence and phases of illness: Differential risk and predictors. *European Psychiatry 26* pp.518-524.

McGirr, A., Tousignant, M., Routhier, D., Pouliot, L., Chawky, N., Margolese, H.C. and Turecki, G. (2006) Risk factors for complete suicide in schizophrenia and other chronic psychotic disorder: A case-control study. *Schizophrenia Research 84* pp.132-143.

Results

Primary Studies

Author (year)	Inclusion criteria	Number of participants	Summary of results	Risk of bias
Chen et al. (2001)	P: Psychiatric outpatients (19 men, 13 women) who met the DSM-IV criteria for chronic schizophrenia (defined as suffering from schizophrenia for more than 2 years) and who had received antipsychotic medication since the onset of psychosis. All patients had also been treated with a combination of the mood stabilizers lithium, carbamazepine and sodium valproate due to affective symptoms of increased hostility, anger spells and irritability. RF: Panic attacks (The Structured Clinical Interview for DSM-IV (SCID-P), patients' families reports). Psychotic and Affective Symptoms (HDRS, 17 items, GAF, BPRS). O: Hostility (hostility subscale on the BPRS). Two year follow up. S: Cross-sectional, using interviews of the participants and their families.	N=32	The aim of this study was to investigate the association between panic attacks and hostility in adults with chronic schizophrenia. Psychotic and affective symptom scores as well as hostility scores were compared between participants with and without a diagnosis of panic attacks. The mean participant age was 35.1 years, no significant differences were found between groups for age, gender or duration of neuroleptic treatment. Eight participants experienced panic attacks and they had significantly higher HDRS scores (mean 18.5 vs. 9.0, $p < 0.01$) and significantly lower GAF scores (mean 38.3 vs. 56.0, $p < 0.05$) than the 24 participants without panic attacks. Those with panic attacks also had significantly higher hostility scores on the BPRS, with 75% having a score of 5 or more, compared to 25% with a score less than 5 ($p = 0.01$). This suggests that panic attacks may be associated with higher levels of hostility and increased anger spells.	High It was unclear how participants were recruited, or how many were ineligible. A clear definition of panic attacks was not given. Participant characteristics were not reported in full. Confounding was not addressed, and the analysis results may not be reliable as only 8 participants had the outcome.
Hodgins	P: Adults from Canada, Finland, Germany,	N=251	The aim of this study was to investigate the	Unclear

et al. (2011)	Sweden and UK with a diagnosis of schizophrenia or schizo-affective disorder. RF: Positive and negative symptoms (PANSS), threat control over-ride symptoms (Psychiatric Epidemiology Instrument), depression (HRSD), illicit drug use (DUDIT). O: Violence/aggressive behaviour (MacArthur Community Violence Interview). Aggressive behaviour defined as throwing something at someone, pushing, shoving, grabbing, slapping, kicking, biting, chocking, hitting, physically attempting to rape, threatening with a weapon or any other violent act towards another person. S: Prospective cohort study (outcomes were assessed at baseline and 2 years).		association between positive symptoms and aggressive behaviour in adults with schizophrenia, after accounting for past and present antisocial behaviour and concurrent symptoms. The presence or absence of aggressive behaviour was analysed for all participants and for subgroups based on the number of positive symptoms (3 or more, and 2 or less). The mean participant age was 37.8 years, 80.9% had schizophrenia, and 20.3% had engaged in aggressive behaviour in the past 6 months. For positive symptoms, 65% had 2 or less of which 16% engaged in aggressive behaviour; and 35% had 3 or more positive symptoms of which 28% engaged in aggressive behaviour. Over all participants, the risk of aggressive behaviour was significantly increased with an increase in TCO symptoms (OR 2.77, 95% CI 1.16 to 6.41; p = 0.018); the number of positive symptoms (OR 1.73, 95% CI 1.00 to 3.00; p = 0.05); and an increase in HRSD score (OR 1.14, 95% CI 1.01 to 1.29; p = 0.029). For participants with few positive symptoms, the number of TCO symptoms and HSRD score were significantly associated with aggressive behaviour. However for those with more positive symptoms, no association between symptoms and aggressive behaviour was	Some aspects of this study were at low risk of bias, such as the statistical analysis and clear reporting of the aims. However, details of the subject selection and outcome assessment were unclear. They reported that those missing at follow-up did not differ from those available, but did not report how many were lost to follow-up. No details were given of how, or by whom the outcome assessment was made, or how reliable it was.

			found.	
McGirr et al. (2006)	P: Caucasian adults diagnoses with schizophrenia or a chronic psychotic disorder. Mean age of suicide group 34.45 years. Suicide cases were recruited over 4 years from Quebec Coroner's Office and the Montreal Central Morgue. Controls were recruited from psychiatric outpatients, and psychiatric community clinics. RF: Psychiatric disorders, personality, impulsivity, hostility and lifetime history of aggression (psychological autopsy methods, involves selecting a family member or friend best acquainted with the subject to serve as an informant, SCID-I and SCID-II,), behaviour, aggression and hostility (BGHA, BDHI, TCI) O: Completed suicide. S: Case-control study.	N=81 (n=45 cases (suicide completers), n=36 controls).	This case-control study aimed to investigate clinical and behavioural risk factors for suicide completion in adults with schizophrenia and other chronic psychotic disorders. Mean ages were similar for the cases and controls (34 vs. 35 years), as well as gender (80% vs. 72%). Rates of a family history of suicidal behaviour were significantly higher for the cases than the controls (55% vs. 13%). No significant differences were seen between cases and controls for gender, marital status, education level, income, or a family history of psychopathology. Moderate to severe current psychotic symptoms (OR 87.37, 95% CI 3.3 to 2309.72), current depressive disorder NOS (OR 395.02, 95% CI 1.47 to 140.5) and cluster C symptoms (OR 0.25, 95% CI 0.07 to 0.91) were all independent significant predictors of suicide.	Low. Cases and controls were clearly defined and came from similar populations. As cases were identified from central death records, this would be without knowledge of risk factors. This was a small study and confounding may be a problem (no matching was used and it was unclear if all confounding factors were included in the analysis).

Risk of Bias

Primary Studies

Study	RISK OF BIAS (ASSESSED USING SIGN GUIDANCE FOR COHORT STUDIES)					
	Question (clearly focussed)	**Subject selection (comparable groups, loss to follow-up)**	**Outcome assessment (clearly defined, reliable and blinded to exposure)**	**Confounding (accounted for in design and analysis)**	**Statistical analysis (reporting of confidence intervals)**	**Overall assessment**
Chen et al. (2001)	☺	?	☹	☹	☹	☹
Hodgins et al. (2011)	☺	?	?	☹	☺	☹
	RISK OF BIAS (ASSESSED USING SIGN GUIDANCE FOR CASE-CONTROL STUDIES)					
	Question (clearly focussed)	**Subject selection (taken from comparable populations, loss to follow-up)**	**Outcome assessment (reliable, blinded to exposure)**	**Confounding (accounted for in design and analysis)**	**Statistical analysis (reporting of confidence intervals)**	**Overall assessment**
McGirr et al. (2006)	☺	☺	☺	☹	☺	☺

☺ Low Risk ☹ High Risk ? Unclear Risk

Search Details

Source	Search Strategy	Number of hits	Relevant evidence identified
SRs and Guidelines			
NICE	schizophrenia AND violence	62	
DARE	(schizo*) IN DARE 626 Delete 2 (psychotic OR psychosis OR psychoses) IN DARE 359 Delete 3 MeSH DESCRIPTOR Schizophrenia EXPLODE ALL TREES 472 Delete 4 MeSH DESCRIPTOR Schizophrenia and Disorders with Psychotic Features EXPLODE ALL TREES 564 Delete 5 MeSH DESCRIPTOR Psychotic Disorders EXPLODE ALL TREES 143 Delete 6 #1 OR #2 OR #3 OR #4 OR #5 1021 Delete 7 (violen* OR aggress* OR hostil* OR fight* OR abus* OR firearm* Or weapon* OR knife* OR knives OR gun* OR assault* OR anger OR angry) IN DARE 986 Delete 8 ((antisocial OR agonis*) adj2 behavi*) IN DARE 10 Delete 9 MeSH DESCRIPTOR Violence EXPLODE ALL TREES 161 Delete 10 MeSH DESCRIPTOR Domestic Violence EXPLODE ALL TREES 105 Delete 11 MeSH DESCRIPTOR Aggression EXPLODE ALL TREES 51 Delete 12 MeSH DESCRIPTOR Firearms EXPLODE ALL TREES 0 Delete 13 MeSH DESCRIPTOR Weapons EXPLODE ALL TREES 1 Delete 14 MeSH DESCRIPTOR Sex Offenses EXPLODE ALL TREES 48 Delete 15 (sex* adj2 (offence* OR abus*)) IN DARE 58 Delete 16 (rape*) IN DARE 14 Delete 17 (self adj2 (harm OR mutilat* OR violen* OR injur*)) IN DARE 60 Delete 18 MeSH DESCRIPTOR Self-Injurious Behavior EXPLODE ALL TREES 124 Delete 19 MeSH DESCRIPTOR Self Mutilation EXPLODE ALL TREES 1 Delete 20 #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19		

	1207 Delete 21 #6 AND #20		
Primary studies			
PsycINFO	1. PsycINFO; schizophrenia.ti; 41022 results. 2. PsycINFO; SCHIZOPHRENIA/; 68109 results. 3. PsycINFO; 1 OR 2; 71595 results. 4. PsycINFO; (depression OR depressive).ti,ab; 193738 results. 5. PsycINFO; (affective OR mood).ti,ab; 108239 results. 6. PsycINFO; anhedonia.ti,ab; 2058 results. 7. PsycINFO; POSITIVE AND NEGATIVE SYMPTOMS/; 2269 results. 8. PsycINFO; 4 OR 5 OR 6 OR 7; 273354 results. 9. PsycINFO; (violent OR violence).ti; 25140 results. 10. PsycINFO; (aggression OR aggressive).ti; 18169 results. 11. PsycINFO; VIOLENT CRIME/ OR VIOLENCE/; 23525 results. 12. PsycINFO; AGGRESSIVE BEHAVIOR/; 20345 results. 13. PsycINFO; 9 OR 10 OR 11 OR 12; 56942 results. 14. PsycINFO; 3 AND 8 AND 13; 87 results.	87	
Embase	15. EMBASE; schizophrenia.ti; 56285 results. 16. EMBASE; *SCHIZOPHRENIA/; 87849 results. 17. EMBASE; 15 OR 16; 90911 results. 18. EMBASE; (depression OR depressive).ti,ab; 297237 results. 19. EMBASE; (affective OR mood).ti,ab; 101681 results. 20. EMBASE; anhedonia.ti,ab; 2600 results. 21. EMBASE; 18 OR 19 OR 20; 361295 results. 22. EMBASE; (violent OR violence).ti; 20135 results. 23. EMBASE; (aggression OR aggressive).ti; 21355 results. 24. EMBASE; exp VIOLENCE/; 97855 results. 25. EMBASE; AGGRESSION/ OR AGGRESSIVENESS/; 42648 results. 26. EMBASE; 22 OR 23 OR 24 OR 25; 144987 results.	27	

	27. EMBASE; 17 AND 21 AND 26; 245 results. 28. EMBASE; 27[Limit to: Exclude MEDLINE Journals]; 27 results.		
Medline	32. MEDLINE; schizophrenia.ti; 46647 results. 33. MEDLINE; *SCHIZOPHRENIA/; 64012 results. 34. MEDLINE; 32 OR 33; 71448 results. 35. MEDLINE; (depression OR depressive).ti,ab; 240425 results. 36. MEDLINE; (affective OR mood).ti,ab; 79258 results. 37. MEDLINE; anhedonia.ti,ab; 1913 results. 38. MEDLINE; 35 OR 36 OR 37; 291908 results. 39. MEDLINE; (violent OR violence).ti; 17639 results. 40. MEDLINE; (aggression OR aggressive).ti; 18669 results. 41. MEDLINE; VIOLENCE/; 23961 results. 42. MEDLINE; AGGRESSION/; 26156 results. 43. MEDLINE; 39 OR 40 OR 41 OR 42; 63879 results. 44. MEDLINE; 34 AND 38 AND 43; 77 results.	77	
Summary	**NA**	**NA**	

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