

Case study 1: An Evidence-based practice review report.

Theme: School/Setting Based Interventions for Social, Emotional and Mental Health.

Is school presentation of selective mutism improved by intervention?

A brief systematic literature review.

Summary

A brief systematic literature review identified five studies comparing pre and post outcomes from psychological interventions targeting selective mutism. Outcomes related to school-relevant behaviours, such as speaking more at school, were used as an indirect indicator that the associated anxiety had been reduced by the intervention. Papers

alongside relevance to teachers and educational psychologists (EPs) and ideas for future research.

Introduction

Selective mutism.

Selective mutism (SM) is classified by the Diagnostic and Statistical Manual of Mental Disorders (DMS 5) as an anxiety disorder (American Psychological Association, APA, 2013). It is recommended to consider SM as a diagnosis:

to speak in specific social situations for at

et al., 2016, p107.)

Prevalence rates are low, estimated as between 0.3 to 1% in the United States (APA, 2013), and interconnected with each school due to the likelihood that assessment and diagnosis will be triggered by school concerns in the first instance rather than those of home (Kovac & Furr, 2019; Stone et al

Guidance for anxiety disorders generally (NICE, 2013) recommends group or individual CBT as the psychological intervention with an evidence base, suggesting it should include between 8-12 sessions and include psychoeducation.

Psychoeducation is seen as key to supporting the environmental elements of any anxiety disorder for example, parent-training elements. The importance of a supportive environmental context extends to schools, where a large proportion of the SM is seen (Stone et al., 2002). School staff may not be therapeutically competent to deliver appropriate CBT sessions however, with support they can make use of psychological theory that underpins effective treatments to support young people in their care in making verbal contributions in the classroom. In the context of SM, altering thought processes around talking behaviour (cognitive change), is achieved through gradual exposure to experiences that reinforce positive associations with speech (behavioural element). Psychoeducation for SM could be delivered to teachers by EPs. Other skills, transferable to a school context, are gradual exposure to speaking tasks to avoid teachers inadvertently participating in reinforcing the problem behaviours.

Treatments discussed in previous reviews (Cohan et al., 2006; Ostergaard, 2018; Zakszeski & DuPaul 2017) and meta analyses (Stone et al., 2002) encompass drug treatment and a range of behavioural, cognitive, family systems and psychodynamic techniques and multi-modal techniques. The most recent review (Ostergaard, 2018) elicits a clinical perspective by comparing drug and behavioural treatments.

Cognitive behavioural approaches (Cohan et al., 2006) and behavioural approaches (Stone et al., 2002) were described as effective, despite overall evidence being evaluated as weak.

Rationale

have transferable skills for teachers in their work with students that are not of concern clinically but who also experience anxiety with speaking out in class.

A detailed description of the methodologies and terminology behind behaviourist principles in treatment methods for SM also eTf1 12 Tfninm

Critical Review of the Evidence Base

Literature search

Electronic database searches of the literature on selective mutism were conducted on the 21/1/2021. Databases searched were: Psycinfo; ERIC(ProQuest); and Web of Science. The search terms used are shown in Table 1. Appendix A shows the combined search method used to identify research in Web of Science. Whilst it was a dated term, it was included to ensure potential studies were identified, future reviews can be confident this term did not produce any additional research post-2000. Previous reviews (Cohan et al., 2006; Zakszeski & DuPaul, 2017) established that interventions for SM did not fall under one umbrella term and, as such, this review did not include intervention descriptors in the search to maximise studies being captured in the process.

Table 1

Search terms used for database searches

Focus	Context
selective mutism Or Elective mutism	

Abstracts and

Figure 1

PRISMA flow diagram search strategy.

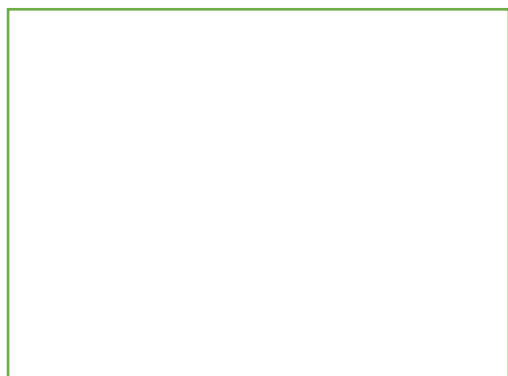


Table 3

Full references of the final 5 studies included in this review

- 1 Catchpole, R., Young, A., Baer, S., & Salih, T. (2019). Examining a novel, parent child interaction therapy-informed, behavioral treatment of selective mutism. *Journal of Anxiety Disorders*, 66. <https://doi.org/10.1016/j.janxdis.2019.102112>
- 2 Cornacchio, D., Furr, J. M., Sanchez, A. L., Hong, N., Feinberg, L. K., Tenenbaum, R., Del Busto, C., Bry, L. J., Poznanski, B., Miguel, E., Ollendick, T. H., Kurtz, S. M. S., & Comer, J. S. (2019). Intensive group behavioral treatment (IGBT) for children with selective mutism: A preliminary randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 87(8), 720-733. <https://doi.org/10.1037/ccp0000422>
- 3 Klein, E. R., Armstrong, S. L., Skira, K., & Gordon, J. (2017). Social Communication Anxiety Treatment (S-CAT) for children and families with selective mutism: A pilot study. *Clinical Child Psychology and Psychiatry*

	Medication was not an exclusion criterion if at least an 8-week stable dose.	Parental education recorded and covered full range of options described.
Cornacchio et al. (2019)	<p>Recruited parents who were seeking help at a SM speciality treatment centre. Met DSM V criteria for SM and where SM was dominant condition if there were other co-morbidities. Excluded if they were non-verbal with both parents due to requirements for pre-treatment baseline.</p> <p>Medication was not an exclusion criterion if stable dose has been established over 6 weeks.</p>	<p>Described as ethnically diverse sample, 1/3 Hispanic/Latino, 41.9% self-identifying as Asian. Diverse economic backgrounds of families (referred to family income levels).</p>
Klein et al. (2017)	<p>Recruited from families who had contacted specialist in SM after advertising the study online. All participants had an SM diagnosis Excluded from participation if taking medication or attending other therapies. Excluded if diagnosis was comorbid with autism or intellectual disability, uncorrected hearing or visual impairment.</p>	<p>Fluency in English was a prerequisite. 72.5% Caucasian, 2.55% African American, 15% Asian, 5% Hispanic and 5% Biracial. Mothers education level and parent anxiety is also recorded.</p>
Lang et al. (2016)	<p>All met DSMV criteria for SM in an anxiety specific clinic. 1 clinician treated all participants.</p>	<p>No further information reported.</p>
Oerbeck et al. (2018)	<p>30/32 children from the previous pilot study and RCT study and 1 child who had received the intervention previously. 3-9 years of age who met diagnostic criteria for SM and do not speak to adults in preschool or school setting. Referral from either CAMHS or school Psychology service. Excluded children had intellectual disability (IQ <50), non-Norwegian speakers. 2 children who were not participants in this follow up were reported as still symptomatic at 1 yr.</p>	<p>9 children were reported as bilingual. Familial SM reported in 11 out of 30 families</p>

A common place for recruiting participants was through medical and clinic settings. The Stone et al. (2002), review indicated the school context was more frequently used to recruit for single case designs, the focus here on non- case study designs was reflected in the higher WoE A values for these five studies. The WoE B ratings were also affected by the recruitment process, with no study allocated 5/5 by the Oxford Levels of evidence criteria due to the lack of randomised control trials

and therefore generalisability, are prioritised over internal validity (determining causality) partly due to the complexity of systemic factors (Barker et al., 2016). Catchpole et al. (2019), Cornacchio et al. (2019) and Klein et al. (2017) collected information about the ethnic and socio-economic status of the families that suggested the samples were diverse. Collecting a diverse sample from opportunistic sampling at clinics suggests that SM is not a culturally specific issue. With symptomology of SM clearly linked to the school context by definition, studies that did not reference the school-context in either their methodology or outcomes measures would be less appropriate for this review question.

for Lang et al. (2016), as school relevant behaviours were reported by parents and not teaching staff, making these scores less valid.

Information gathered on participants familial background was a strength of Catchpole et al. (2019), Cornacchio et al. (2019), and Overbeck et al (2018), it supports the developing understanding around systems-based influences, for example, familiar links with SM did negatively affect outcomes (Overbeck et al., 2018). This element was missing from the WoE assessments and would be a helpful addition to the Downs and Black (1998) checklist, in order to assess how broadly findings can be applied across different groups.

Inclusion criteria had filtered studies for school-age children, ensuring the participant groups were matched well to answer the review question

Study	Intervention name	Intervention outline and key features of protocol.
Lang et al. (2016)	Modular Cognitive behavioural therapy (MCBT).	<p>behaviours of parents, reduce avoidance behaviours in the child.</p> <p>Behavioural and cognitive strategies used.</p> <p>Spaced sessions provided time for parents and children to chart goal progress in communication environments that were usual for each child.</p> <p>This process was designed specifically for SM by Elisa Shipon-Blum access to treatment information was given in link to website (listed in references)</p> <p>Length of treatment M = 12.58 months</p> <p>Modules used to create an individualised treatment. Included: psychoeducation; physiological training, cognitive training (cognitive restructuring), behaviour training (contingency management, exposure hierarchy, modelling, shaping, gradual desensitisation); parent training; educational or recreational staff training.</p>

Measures

Outcome measures (Table 8) common across studies were a version of the SMQ (Bergman et al., 2008) and the Anxiety Disorders Interview Schedule (ADIS, Silverman & Albano, 1996). The use of validated measures and the justification of them led to consistent scores on two elements of the WoE A checklist across the research field.

The call by Stone et al. (2002), for researchers to make use of standardised tools used for other anxiety disorders seems to have been answered by researchers. The ADIS was used for baseline assessment of severity of symptoms, e.g. Catchpole et al. (2019) $M = 6.48$ (range = 4.5-8, $SD = 1.23$) where a score of 4 is considered as moderate and 8, very severe (Silverman & Ollendick, 2005). ADIS was also used in waitlist control studies to demonstrate similarity of symptom severity in both groups, for example, Cornacchio et al. (2019), reported that the intervention group had ADIS score $M = 4.9$ ($SD = 0.8$), and waitlist control $M = 4.9$ ($SD = 0.7$). Klein et al. (2017) referred to a need for an ADIS score of at least 4 as an inclusion criterion. ADIS

(PPVT -2 or 4, Dunn & Dunn, 2007) and the Expressive Vocabulary Test (EVT-2, Williams, 2007) and concluded that scores on neither of these measures were predictors of outcomes on SMQ after treatment.

Klein et al. (2017) also used Family compliance rating pre-intervention and found a low score for compliance from parents associated with less positive outcomes post-intervention.

Oerbeck et al. (2018) were the only researchers to include a child self-rating of social speaking and Inventory of life quality in children and adolescents (ILC, Jozefiat, 2011).

Findings

The studies reviewed demonstrate outcomes with large effect sizes (Table 8), having been weighted positively for their methodology (Table 4).

Whilst Cornacchio et al. (2019), Oerbeck et al. (2018) found the youngest children were more likely to show improvement, Catchpole et al. (2019) did not find this to be the case. Lang et al. (2016),

noted that 38.7% of their participants were on medication at the start of the study, indicating high levels of symptomology, but medication was not a predictor of outcome in that study and Klein et al. (2017) found no correlation between duration of SM before treatment and outcomes. More participants were female in the studies that reported gender (Table 8) however, gender was not seen as having a significant impact on outcome (Oerbeck et al., 2018).

Klein et al. (2017) reported the findings of the SMQ for each specific school relevant situations (Appendix G, Table 7), showing large effect sizes (Cohen, 1992) over time, which, in the context of a much shorter programme of treatment than previous examples, have a practical and user-friendly application to school. The Klein et al. (2017) study using S-CAT required 3 meetings to gain the large effect reported. The next shortest were 16 hours (Catchpole et al., 2019) and Oerbeck et al. (2018) that ranged from 8-24 weeks. In hindsight length of treatment as part of a feasibility analysis may have been a helpful addition to the WoE C appraisal when considering delivering interventions for school age children.

What can also be seen from Appendix G, and the reason for highlighting this level of detail from one study, was the much lower starting points for any task involving speaking to staff. These differences highlight the importance of school staff having an awareness of SM and strategies to reduce anxiety in the classroom. The involvement of school staff was a key element of the Catchpole et al. (2019) differences highlight th

The findings suggest intervening in the classroom with techniques based around these strategies as early as possible to lead to beneficial outcomes in relation to reducing severity of SM.

Fidelity of treatment

On reflection, an area not assessed by the WoE appraisal was an acknowledgement of fidelity of intervention protocols.

Table 9 shows that fidelity of treatment was explicitly addressed by Catchpole et al. (2019), Cornacchio et al. (2019), and Klein et al. (2017). The impressive treatment outcome for SMQ over just 3 sessions, in the Klein study has yet to be seen delivered by other therapists beyond the programme designer. Caveated against the backdrop of all studies having impressive effect sizes, intervention outcomes demonstrated across more than one therapist have increased generalisability.

Table 8

Effect sizes (ES) for SMQ (and/or SSQ) with basic study d

Doctorate in Educational Psychology

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Author and country	Study design	Sample	SMQ or SSQ outcome data reported	Effect size(s)
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Author and country	Study design	Sample	SMQ or SSQ outcome data reported	Effect size(s)	Overall WoE D rating	Other outcome data reported
	Intervention group followed up 1 year later.					84% recovery rate
Oerbeck et al. (2018) Norway	RCT and quasi-experimental pilot design. Mean 21 weeks Intervention followed up at 5 yrs.	N = 31 (follow up of pilot and RCT participants from 2015 paper) Age range at baseline:3-9yrs. Females 20, males 11)	SMQ school: 5 years post, F (4, 119) = 28.49, $p < 0.001$ At 1-year post treatment SSQ (teacher): 5-year post intervention At 1-year post intervention	d = 2.8 ^a Large d = 1.52 ^a Large d = 2.11 Large d = 1.41 Large	High	Anxiety Disorders interview schedule IV (ADIS-IV) Schedule for affective disorders and schizophrenia for school-aged children: present and lifetime version (K-SADS-

Table 9

Intervention fidelity

Fidelity of treatment protocol

Catchpole et al. 2019

Conclusion and Recommendations

Conclusions

Previous reviews have identified gaps and problems within SM literature that this current review found being gradually addressed. Less variability was seen in methodological quality across the studies compared to reviews of all treatment methods (Stone et al., 2002), a consistent use of standardised measures applicable to anxiety and SM specifically (Cohan et al., 2006) and a more homogenous treatment approach despite differences in intervention labels (Zakszeski & DuPaul, 2017).

After the review by Zakszeski and DuPaul (2017), calling for larger sample research to complement the body of case study data on SM, this review was able to identify research fitting this category since 2000 that covered 2015 to 2021, a time period that includes substantial partial school closure due to COVID-19. It is positive the call for research has been responded to and will, hopefully²⁸

Early intervention and working with children before symptoms are severe are positively associated with the largest improvements (Oerbeck et al., 2018). This suggests a role of educators and educational psychologists at early identification of non-verbal behaviour in the classroom to ensure that measures can be put in place

Overbeck et al. (2018) report the need to continue to support young people with social phobia following treatment for SM as there was evidence for the continued diagnosis of a social phobia in 23% of their participants. This research team were

Limitations and areas for future research

Whilst the ADIS was commonly used across studies to determine a baseline perspective on symptom severity, the actual data was not always reported.

Commonly reporting this data in SM research would increase the ability to compare research outcomes and postulate about effectiveness with a clearer knowledge on what level of symptomology effective outcomes were linked to.

In line with previous reviews it is still not possible to use the data collected to elicit exactly what elements of practice are effective, leaving this as an area for future

Cohen, J. (1992). "A power primer." *Psychological Bulletin*, Vol. 112, No. 1, pp. 155-159.

doi: [10.1037/0033-2909.112.1.155](https://doi.org/10.1037/0033-2909.112.1.155)

Cuijpers, P., Weitz, E., Cristea, I. A., & Twisk, J. (2017). Pre-post effect sizes should be avoided in meta-analyses.

Epidemiology and Psychiatric Sciences, 26(4), 364-368.

<https://doi.org/10.1017/S2045796016000809>

Department of Health and Social Care, & Department for Education. (2018).

Government Response to the Consultation on Transforming Children and Young

People's Mental Health. July, 48.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728892/government-response-to-consultation-on-transforming-children-and-young-peoples-mental-health.pdf

Downs, S. H., & Black, N. (1998). The feasibility of creating a checklist for the

assessment of the methodological quality both of randomised and non-

randomised studies of health care interventions. *Journal of Epidemiology and*

Community Health, 52(6), 377-384. <https://doi.org/10.1136/jech.52.6.377>

Dunn, L. M., & Dunn, D. M. (2007). *Peabody Picture Vocabulary Test* (4th ed.).

Minneapolis, MN: Pearson assessments.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible

statistical power analysis program for the social, behavioral, and biomedical

Gough, D. (2007). Weight of evidence: A framework for the appraisal of the quality and relevance of evidence. *Research Papers in Education*, 22(2), 213–228.

<https://doi.org/10.1080/02671520701296189>

Hilt, R., Nussbaum, A., & American Psychiatric Association, issuing body. (2016).

DSM-5 pocket guide for child and adolescent mental health / Robert J. Hilt, Abraham M. Nussbaum. (First ed.) p107.

Jozefiak T (2011) Inventory of life quality in children and adolescents. Hogrefe Psykologiförlaget AB, Stockholm

Kern, L., Starosta, K. M., Cook, C. R., Bambara, L. M., & Gresham, F. R. (2007).

Functional assessment-based intervention for selective mutism. *Behavioral Disorders*, 32(2), 94–108. <https://doi.org/10.1177/019874290703200203>

Kovac, L. M., & Furr, J. M. (2019). What Teachers Should Know About Selective mutism in Early Childhood. *Early Childhood Education Journal*, 47(1), 107–114.

<https://doi.org/10.1007/s10643-018-0905-y>

Kratochwill, T. R., & Shernoff, E. S. (2003). Evidence-Based Practice: Promoting Evidence-Based Interventions in School Psychology. *School Psychology Quarterly*, 18(4), 389–408.

<https://doi.org/10.1521/scpq.18.4.389.27000>

National Insitute for Health and Care Excellence (2013) General Anxiety Disorders

OCEBM Levels of Evidence Working Group*. "The Oxford 2011 Levels of Evidence". Oxford Centre for Evidence-Based Medicine.

<http://www.cebm.net/index.aspx?o=5653> accessed 30.01.2021. * OCEBM Table of Evidence Working Group = Jeremy Howick, Iain Chalmers (James Lind Library), Paul Glasziou, Trish Greenhalgh, Carl Heneghan, Alessandro Liberati, Ivan Moschetti, Bob Phillips, Hazel Thornton, Olive Goddard and Mary Hodgkinson

Reilly, M. O., McNally, D., Sigafos, J., Lancioni, G. E., & Green, V. (2008).

Examination of a Social problem-solving intervention to Treat Selective mutism. *Behavior Modification*, 182-195. <https://doi.org/10.1177/0145445507309018>

Østergaard, K. R. (2018). Treatment of selective mutism based on cognitive behavioural therapy, psychopharmacology and combination therapy a systematic review. *Nordic Journal of Psychiatry*, 72(4), 240-250. <https://doi.org/10.1080/08039488.2018.1439530>

Petticrew, M., & Roberts, H. (2003). Evidence, hierarchies, and typologies: Horses for courses. *Journal of Epidemiology and Community Health*, 57(7), 527-529. <https://doi.org/10.1136/jech.57.7.527>

Pickard, H., Rijdsdijk, F., Happé, F. & Mandy, W. (2017). Are Social and Communication Difficulties a Risk Factor for the Development of Social Anxiety? *Journal of the American Academy of Child & Adolescent Psychiatry*, Volume 56, Issue 4, 344-351.e3. ISSN 0890-8567, <https://doi.org/10.1016/j.jaac.2017.01.007>.

Appendix A

Additional information for database search of Web Of Science.

Table 1a Web of science combined searches.

	Search terms used and results
Search 1	selective mutism education AND intervention: 82,571
Search 2	selective mutism emotional AND
Combined 1 and 2	15,552
Search 3	selective mutism
Combined search ! and 2 with Search 3	35 studies went to checking stage.

Appendix B

Excluded studies

Abstract and full paper exclusion	Reason for exclusion
<p>Kern, L., Starosta, K. M., Cook, C. R., Bambara, L. M., & Gresham, F. R. (2007). Functional assessment-based intervention for selective mutism. <i>Behavioral Disorders</i>, 32(2), 946-108. https://doi.org/10.1177/019874290703200203</p>	<p>ERIC search. No quantifiable outcome measure of pre and post outcomes.</p>
<p>Manassis, K., & Tannock, R. (2008). Comparing interventions for selective mutism: A pilot study. <i>Canadian Journal of Psychiatry</i>, 53(10), 7006703. https://doi.org/10.1177/070674370805301010</p>	<p>Ancestral search. Drug treatment.</p>
<p>Martinez, Y. J., Tannock, R., Manassis, K., Garland, E. J., Clark, S., & McInnes, A. (2011). Assessment of Selective mutism and Anxiety Disorders. <i>Canadian Journal of School Psychology</i>, 30(2), 836101. https://doi.org/10.1177/0829573514566377</p>	<p>Web of Science search. No quantifiable outcome measure of pre and post student data. Reliability and validity assessment of teacher reporting tool.</p>
<p>Oerbeck, B., Stein, M. B., Wentzel-Larsen, T., Langsrud, Ø., & Kristensen, H. (2014). A randomized controlled trial of a home and school-based intervention for selective mutism - defocused communication and behavioural techniques. <i>Child and Adolescent Mental Health</i>, 19(3), 1926198. https://doi.org/10.1111/camh.12045</p>	<p>Ancestral search. Data linked to 2015 and 2018 follow up studies.</p>
<p>Oerbeck, B., Stein, M. B., Pripp, A. H., & Kristensen, H. (2015). Selective mutism: follow-up study 1 year after end of treatment. <i>European Child and Adolescent Psychiatry</i>, 24(7), 7576766. https://doi.org/10.1007/s00787-014-0620-1</p>	<p>Web of science. Data linked to 2014 and 2018 follow up studies. (2018 selected as it had not been</p>

<p>Remschmidt, H., Poller, M., Herpertz-Dahlmann, B., Hennighausen, K., & Gutenbrunner, C. (2001). A follow-up study of 45 patients with elective mutism. <i>European Archives of Psychiatry and Clinical Neuroscience</i>, 251(6), 284-296. https://doi.org/10.1007/PL00007547</p>	<p>Web of Science search. 15 year follow up study with a clinical focus.</p>
<p>Rodrigues Pereira, C., Ensink, J. B. M., Güldner, M. G., Kan, K. J., de Jonge, M. V., Lindauer, R. J. L., & Utens, E. M. W. J. (2020). Effectiveness of a behavioral treatment protocol for selective mutism</p>	

Question	Descriptor	Score
<i>described, the question should be answered yes. For studies which refer to other work or that demonstrates the outcome measures are</i>		

Appendix E

Weight of evidence C.

Assessment for WoE C was for relevance of the study to the review question and the context of how and where the research had taken place.

Type of sample: all studies included school age children as part of the inclusion criteria and were recruited through specialist clinics and health care provisions.

Issues of validity were assessed as part of the WoE A evaluation and all identified studies were using a common outcome measure (SMQ). A key point of difference that remained to be assessed was the issue of reliability of data reported for the school context, was school context data reported by home or school?

Low

1

The paper is about non-

Appendix F

WoE D: Overall assessment of weight of evidence.

Studies were allocated a numerical value for each WoE component. Each of these component values were then added to create a score out of 11 and this value was used to calculate a percentage (Table 5). The table below shows how the percentages were allocated an overall WoE label to mirror the three-level evaluation of the individual WoE A, B and C, and were divided into three values to match. It is acknowledged that whilst the studies identified in this review do not fall across the whole value range, it may be that future updates to this review may need to make full use of the categories.

WoE A-C totals	WoE D	Percentage score of each study
0-3	Low	33% or below
4-7	Medium	34% to 66%
8-11	High	67% to 100%

Appendix G

Table 7.

Findings extracted from Klein et al. (2016) showing changes over time on the school-specific sub sections of the SMQ

	Pre-treatment	End of treatment	15 weeks after start of treatment	Effect sizes Partial eta squared ρ)
Speaks to most peers				