

# New Development in the Conceptualization and Assessment of High Expressed emotions in Schizophrenia

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# My key research areas

## 1. Schizophrenia

1. “High EE” in family of persons with schizophrenia
2. De-stigmatization intervention grounded on Inter-group Contact Theory

## 2. Operationalization of Chinese medicine stagnation syndrome (中醫鬱證) as a psychological construct useful to all mental health practitioners – a strategic-integrative approach

## 3. Workplace well-being

1. A paradigm from stress and burnout to meaning and engagement
2. Social service sector (vs commercial & public sectors)

## 4. Mindfulness

1. Basic research: daily spiritual experience, enlightenment experience
2. Intervention studies: mobile-assisted perinatal mindfulness practice

Schizophrenia - the biggest service user group in our mental health services

- Despite relative low prevalence (c.f. point prevalence ~0.3-0.6%), schizophrenia accounts for

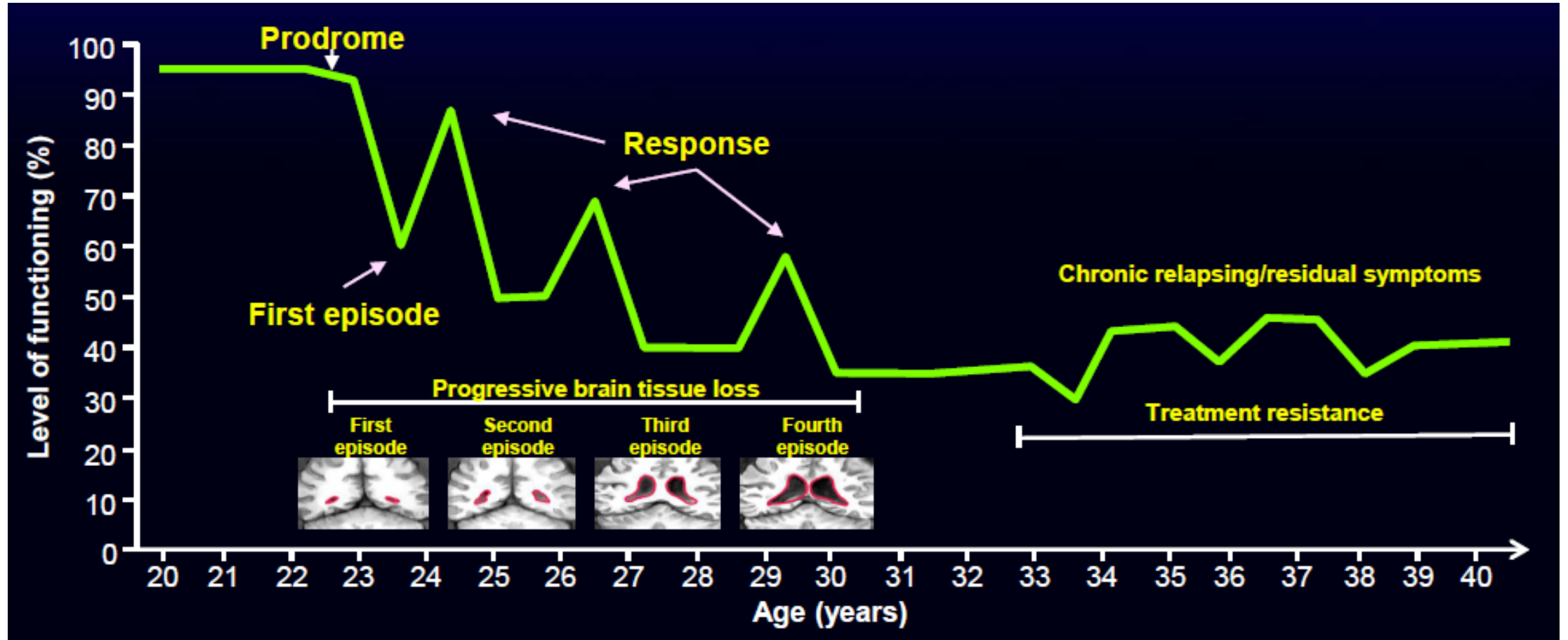
***Why?***





Many running a downhill  
chronic course 😞

Repeated relapse is a threat in ~80% schizophrenic patients



Nasrallah HA & Smeltzer DJ. In: Contemporary diagnosis and management of the patient with schizophrenia. 2nd ed. Newtown, PA: Handbooks in Health Care Co.; 2011.

# Clinical and Social Consequences of Relapse to Patients, Caregivers and Society

Family burden  
and estrangement<sup>1,2</sup>

Loss of self-esteem  
(due to stigma)<sup>1</sup>

Increased cost of  
care<sup>1,2</sup>

Potential danger to  
self and others<sup>1</sup>

Social stigma leading to  
discrimination<sup>3</sup>

Illness may become  
treatment-resistant<sup>1</sup>

Potential  
neurobiological  
sequelae<sup>4</sup>

Harder to re-establish  
previous function<sup>1</sup>

Recovery can be slow  
and less complete<sup>5</sup>

1. Kane. CNS Spectr 2007;12(10 s17):21–26

2. Awad & Voruganti. Pharmacoeconomics 2008;26:149–162

3. Thornicroft et al. Lancet 2009;373:408–415

4. Andreasen et al. Biol Psychiatry 2011;70:672–679

5. Wyatt et al. J Psychiatr Res. 1998 ; 32(0): 169–177

# Preventing Relapse is a Key Goal in many International Clinical Guidelines for Schizophrenia

“In general, it is more important to prevent relapse and maintain the stability of the patient [Class III Recommendation]” – APA Guidelines 2004<sup>2</sup>

“First-episode patients are generally more sensitive to the therapeutic effects and side effects of medications and often require lower doses than patients with chronic schizophrenia. Minimizing risk of relapse in a remitted patient is a high priority, given the potential clinical, social, and vocational costs of relapse [Class I Recommendation]” – APA Guidelines 2004<sup>2</sup>.

“Antipsychotic medications substantially reduce the risk of relapse in the stable phase of illness and are strongly recommended [Class I Recommendation]” – APA Guidelines 2004<sup>2</sup>.

1. APA Practice Guidelines, 2004.

[http://www.psychiatryonline.com/pracGuide/loadGuidelinePdf.aspx?file=Schizophrenia2ePG\\_05-15-06](http://www.psychiatryonline.com/pracGuide/loadGuidelinePdf.aspx?file=Schizophrenia2ePG_05-15-06)

2. NICE Schizophrenia Guidelines CG178, February 2014

3. Barnes et al. J Psychopharmacol 2011;25:567–620

# 2 strongest risk factors of relapse



## Drug noncompliance

~80% needs long-term antipsychotic medications, even during remission



## Family high expressed emotions

Often called '***high EE***' among mental health professionals

3 components

- Over criticism, and/or
- Hostility, and/or
- Emotional over-involvement (EOI)



A dark, irregular ink blot with the text "High EE" centered inside it. The blot is surrounded by a light, textured background with some smaller dark spots.

High EE

# Discovery of the High EE construct

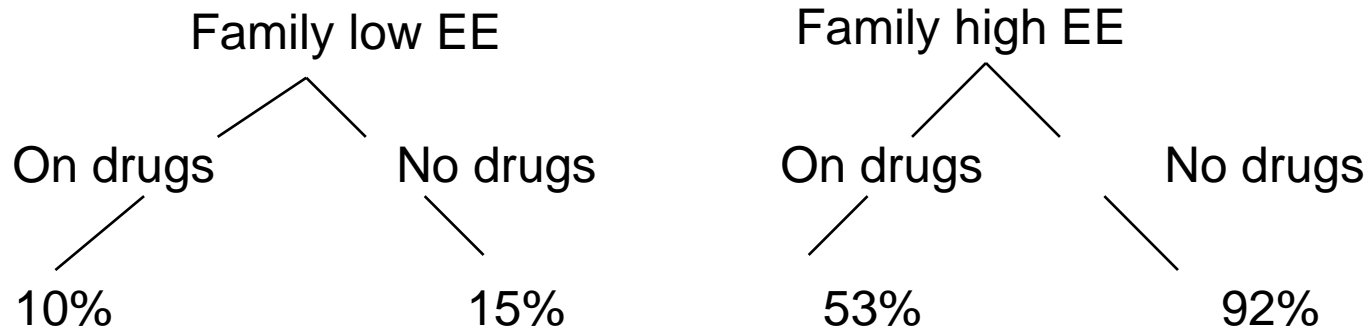
- Anti-psychotics started widely used in 1950's
- “Asylums” → Discharging chronic mental patients home
- Relapse rate soon found to be HIGH!!
- Family “emotional climate” a risk factor (Brown, Carstairs & Topping, 1958; Brown & Rutter, 1966)
- “Expressed emotion” (EE)
  - *“Affective attitudes and behaviors of a significant other toward a psychiatric patient”*

# High EE & relapse of schizophrenia

(Vaughn & Leff, 1976)

- Three components
  1. Criticism, and/or
  2. Hostility, and/or
  3. Emotional over-involvement (EOI)

## 9-month relapse rate



A recent meta-analysis: Ma, C.F., Chan, S.K.W., Chung, Y.L., Ng, S.M., Hui, C.L.M., Suen, Y.N., & Chen, & E.Y.H. (2021). The predictive power of expressed emotion and its components in relapse of schizophrenia: a meta-analysis and meta-regression. *Psychological Medicine*, 1-11.

- Identified 32 prospective cohort studies comprising 2,284 patients
- High EE significantly predicted
  - early relapse ( $\leq 12$  months) OR 4.87 (95% CI 3.22–7.36)
  - late relapse ( $> 12$  months) OR 2.13 (95% CI 1.36–3.35)
- Higher level of warmth significantly protected patients from relapse OR 0.35 (95% CI 0.15–0.85)

## Camberwell Family Interview (CFI) (Brown, 1958; Rutter & Brown, 1966)

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- A semi-structured interview
- Administered with a significant other shortly after patient's admission
  - Illness history, symptomatology, irritability & quarrelling, quality of relationship, amount of contact between patient & relative
- Audio-taped for coding
  - Frequency counts: Critical comments, positive remarks
  - Likert Scale: Hostility (0-3), EOI, warmth (0-5)



# CFI

- Still widely regarded as the 'gold standard' of measuring EE
- But NOT widely used, because it
  - Takes time (~2-3 hours per assessment)
  - Needs specially trained staff
  - Involves carer(s)

# Other interview format measures

- Five Minute Speech Sample (FMSS) (Gottschalk & Gleser, 1969; Magana et al., 1985)
  - Interview with carer
  - Underestimate EE score on CFI ~20-30%
  - Weak evidence of predicting schizophrenic relapse
- Patient's Perception Interview (Mintz et al., 1995)
  - Interview with patient
  - Correlated with FMSS; No/little further info

# Questionnaires – by patients

- Level of Expressed Emotion Scale (Cole & Karzarian, 1988)
- Influential Relationships Questionnaire (Parker, Tupling & Brown, 1984)
- Perceived Criticism Scale (Hooley & Teasdale, 1989)
- Family Emotional Involvement and Criticism Scale (Shields et al., 1992)



# Questionnaire – by relatives

- Patient Rejection Scale (Kreisman et al., 1979)
- Questionnaire Assessment of Expressed Emotion (Docherty et al., 1990)
- Adjective Checklist (Friedmann & Goldstein, 1993)
- Family Attitude Scale (Cavanaugh et al., 1997)

By both patient & relative

- Family Environment Scale (Moos & Moss, 1981)



# LEE Scale (Cole & Karzarian, 1988)

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- More widely used
- 60 items, 4 factors
- Other versions:
  - Dutch (Gerlsma et al., 1992)
    - 38 items, 3 factors
  - Chinese (Chien & Chan, 2009)
    - 52 items, 4 factors

# LEE Scale

## - Positively worded items

- Half of the items (i.e. 30) are positively worded
  - ➔ Reverse coding ➔ measure high EE
- A big assumption here:
  - Absence of positive ➔ Presence of negative???
- Cultural factors
  - Chinese cultures
    - More reserved in giving positive emotional responses
    - “Absence of positive” NOT necessarily implies “presence of negative”
    - E.g. I didn’t say “I love you” = “I hate you”?
  - Dutch version: Removed most negatively worded items

# Concise Chinese LEE Scale

– First scale validation (Ng & Sun, 2011)

- Measure high EE directly by negatively worded items
  - ➔ Removed the 30 positively worded items
- N = 188 Chinese schizophrenic patients
- EFA provided a 12-item, 3-factor solution
- Good psychometric properties
  - Optimized factor loading pattern (0.6-0.8)
  - Good internal consistency & construct validity
- Conceptual coherence
  - 3 factors: Criticism, Hostility, EOI
  - Exactly matching the high EE structure

# Further validation of Concise Chinese LEE Scale (Ng, Yeung & Gao, 2019)

- One-year longitudinal F/U 101 persons suffering from schizophrenia
- Administered Concise LEE Scale at baseline
- Collected 1-year relapse data
- ROC curve analysis → optimal cut-off on Concise Chinese LEE Scale
  - **High EE** = [Criticism  $\geq$  13] and/or [Hostility  $\geq$  13] and/or [EOI  $\geq$  15]
- **Odd ratios (High EE vs Low EE, 1-year relapse rate) = 6.3!!!**
- Correspondence with Camberwell Family interview = 90%
- High EE % = 32.7%

Ng, S.M., Yeung, C.H., & Gao, S. (2019). A concise self-report scale can identify high expressed emotions and predict higher relapse risk in schizophrenia. *Comprehensive Psychiatry*, 89: 1-6.

# Significance

- Ensure early intervention of family high EE
  - Family therapy
  - Person with schizophrenia & the family member are sufficiently, meaningfully engaged
    - Contact < 35 hours per week → mitigate the effect of high EE
  - Psychoeducation program
  - Recovery-focused services
  - Antipsychotic medication
    - Priority for 2<sup>nd</sup> generation long acting injectable antipsychotic?
- Future research of family high EE
  - Much easier → More in-depth studies

# Discussion – cultural related issues

1. The high EE concept is valid & relevant to Chinese adults with schizophrenia
  - Strongly predictive of relapse!
2. Using reverse items to measure high EE do not in Chinese (& other emotionally more reserved cultures, e.g. Dutch?)
  - Doesn't often say 'I love you' not necessarily mean 'I don't love you' in these cultures
3. In Chinese culture, the threshold of 'Emotional Over-Involvement' is extremely high: **a score of  $\geq 15$  out of 16!**
4. High EE rate (32.7%) seems lower than that in Western cultures
  - Because of an emphasis on self-control/sacrifice?

# High Expressed Emotions in Family of People with Schizophrenia – Expanding its conceptualization to include a covert abrasive behaviours component

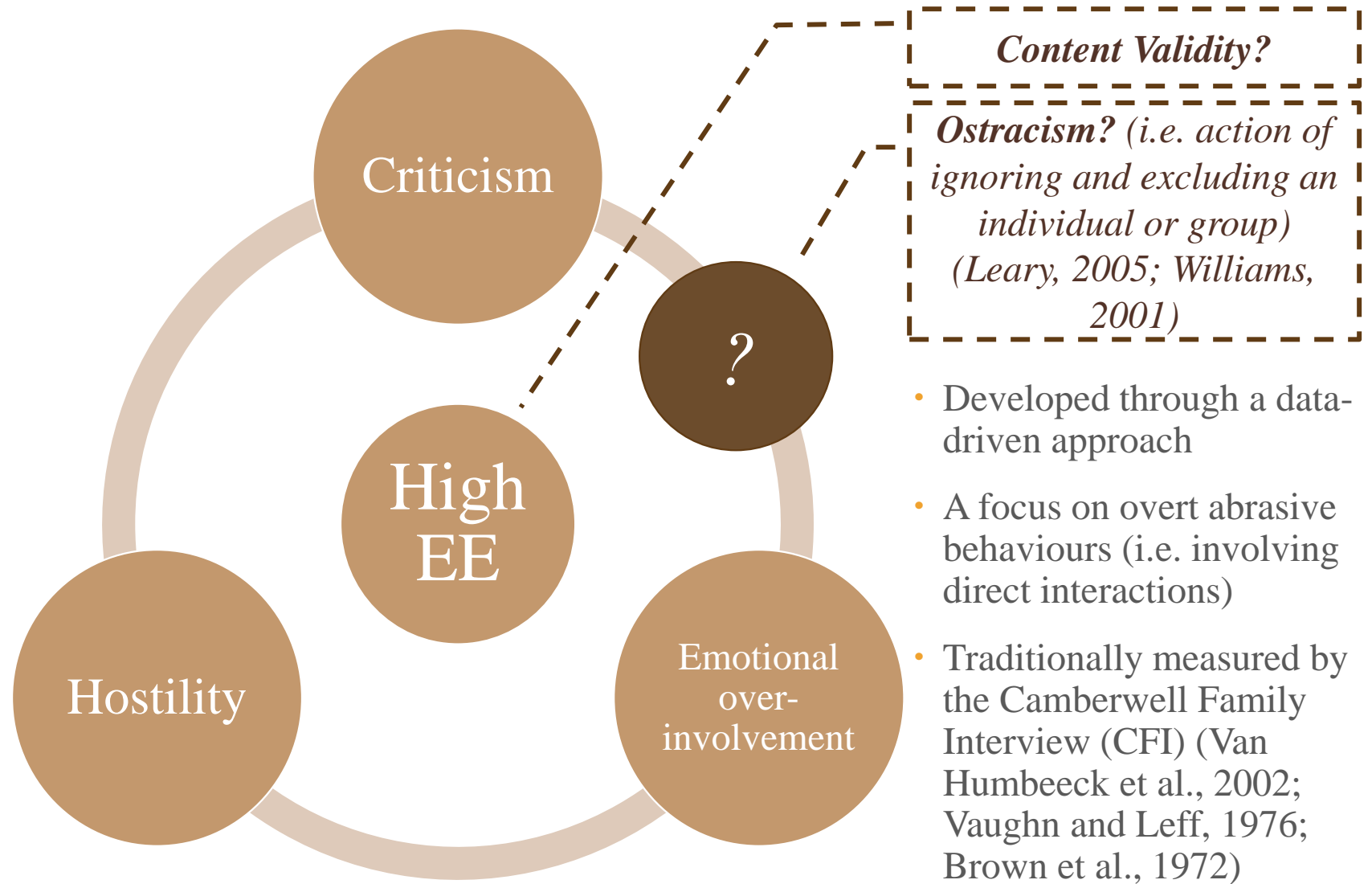


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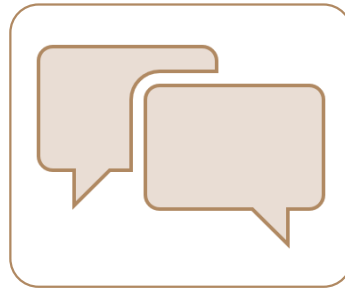
# High Expressed Emotions (EE): What is known and what is not?



# Methods: Design & Data analysis



To explore the **experiences of people with schizophrenia** in regard to the **overt and covert abrasive behaviours** performed by their **family members**



## Qualitative semi-structured individual interviews (1-1.5h)

1. Demographic data (collected prior to the interviews)
2. Subjective experiences of overt and covert abrasive behaviours
3. Psychological and behavioural influences



## Data analysis

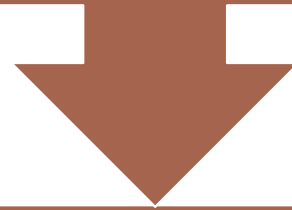
1. Verbatim transcription of the audio recordings
3. Inductive coding
4. Thematic analysis and repeated deliberations

\*The study was approved by the Institutional Review Board of The University of Hong Kong and the Hong Kong Hospital Authority Island Western Cluster (Reference number: UW15-010)

**Sampling:**  
Iterative  
purposive  
sampling

**Inclusion criteria**

- (a) Aged between 18-65 years
- (b) Diagnosed with schizophrenia according to the ICD-10
- (c) Attending regular medical follow-ups and in a stable mental state
- (d) Proficient in communicating in Cantonese, the local dialect



Preliminary qualitative data analysis



Identifying another participant with different attributes and predicaments until data saturation



**22 participants**

**Excluding** people with a history of neurological problems, developmental disabilities, drug or alcohol addiction, or severe cognitive deficiency

**Table 1.** Sociodemographic characteristics of participants (N = 22).

Sociodemographic variables		Number of participants
Age (years)	31–40	5
	41–50	11
	51–60	4
	61 or over	2
	(Mean age = 46.7)	
Gender	Female	12
	Male	10
Marital status	Single	11
	Married	9
	Divorced	2
Living conditions	With spouse	7
	With parents and siblings	7
	Living in residential hostel	5
	Living alone	3
Education	No formal education	3
	Primary education or lower	6
	Secondary education	11
	Post-secondary education	2
Duration since first diagnosed schizophrenia (years)	1–5	5
	6–10	6
	11 or more	11
Employment status	Gainfully employed	10
	Unemployed	9
	Retired	3

# Results:

## (i) Demographic data

- 10 men; 12 women
- Mean age: 46.7 years, ranging between 31-65
- Regular contact: at least one contact per week between the participants and their family, either face-to-face or by phone

## Perceived High EE behaviours

- All reported experiences of both overt and covert abrasive behaviours
- Differential psycho-behavioural impacts

# Results:

## (ii) Overt abrasive behaviours

- **Criticism:** more about actions grounded on negative beliefs towards the participants

- **Hostility:** more about attitude and emotional reactions towards positive and negative symptoms of the participants

- **Over-involvement:** renamed from “emotional over-involvement” as our study revealed that marked emotional expressions were not necessarily present during these interactions
- Focuses more on behaviors of overprotecting, restricting, checking and controlling

**Table 2.** Family members' overt abrasive behaviours, as perceived by people with schizophrenia.

Domains	Overt abrasive behaviours
Criticism	Accusing me of being a troublemaker
	Accusing me of being a burden on the family
	Reprimanding me when I complain about my health issues
Hostility	Showing dislike of my behaviours
	Showing annoyance when assisting me
	Showing they are upset due to the symptoms of my mental illness
Over-involvement	Overprotecting me from performing daily duties
	Restricting my daily activities
	Checking on my daily activities
	Controlling my behaviours

Chinese cultural context:  
face-saving and harmony

## Results:

### (iii) Covert high EE behaviours

**Table 3.** Family members' covert abrasive behaviours, as perceived by people with schizophrenia.

Domains	Covert abrasive behaviours
Disassociation	Not approaching or visiting me
	Not staying in the same space as me
	Avoiding events that I attend
	Not answering my phone calls or messages
	Not responding when I initiate an action
	Avoiding eye contact with me
	Avoiding bodily contact with me
	Behaving as if they did not see me
	Not inviting me to speak
	Interrupting me when I am speaking
Apathy	Not inviting me to social activities
	Showing no concern about my health condition
	Showing no interest about my social situation
	Showing unwillingness to accompany me to handle personal matters, such as attending medical appointments

- **Disassociation:** distancing oneself from, avoiding and not responding to the participants
- Focuses on family members' actions and strategies for achieving disengagement with the participants

- **Apathy:** lack of affection and respect for the participants, leading to a subtle but strong form of rejection
- Focuses on an indifferent attitude and lack of affection

# Results:

## (iv) Psychological consequences & Behavioural reactions

### Overt abrasive behaviours:

- interactional process
- having the opportunity to explain
- bringing up new topics and perspectives

VS

### Covert behaviours:

- shutting off possibility of interactions
- limited changes in communication pattern
- leading to feeling of abandonment, lost of sense of control, and questioning of the purpose of existence
- Threatens self-esteem and belongingness (Williams, 1997, 2001; Williams and Zadro, 2001; Nezelek et al., 2012)

**Table 4.** Psychological consequences and behavioural reactions induced by overt and covert abrasive behaviours experienced by people with schizophrenia.


Effects	Perceived severity of effects*	
	Induced by overt abrasive behaviours	Induced by covert abrasive behaviours
<b>Psychological distress</b>		
Feeling sad	+	++
Feeling abandoned	0	+++
Feeling discriminated against	+++	++
Feeling disgusting	+++	+++
Feeling lonely	0	+++
Feeling distrustful	++	0
Feeling shameful	+++	+
<b>Behavioural reactions</b>		
Becoming silent	0	+++
Not showing up for family activities	+++	+++
Not initiating contact again	+	++
Not disclosing health conditions	+++	0
Not making new friends	++	+
Not complying to prescribed medications	+++	+++
Not seeking psychosocial help	+++	+++
Reducing usual activities	+++	+++

\*Note: Severity rating: +++ = severe effect; ++ = moderate effect; + = mild effect; 0 = no or minimal effect.

# Conclusion

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## Expanding conceptualization of EE:

1. Renaming “emotional over-involvement” to “over-involvement” to focus on behaviors and embrace different types of emotional reactions
2. Identifying 2 domains of covert abrasive behaviours: disassociation and apathy 

- People with schizophrenia experience both overt and covert abrasive behaviors of their family members
- They induce different psychological distresses and behavioural reactions
- Overt abrasive behaviours allow interactions and changes of communication patterns; covert abrasive behaviours shut off interactions and lead to sense of abandonment



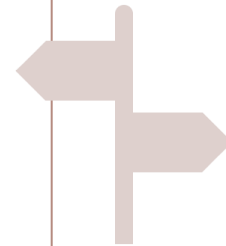
# Significance & limitations

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Despite the limited generalizability and the limitation of participants' subjective experiences due to social desirability and recall bias, this study:



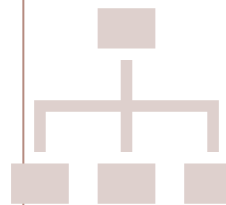
Reveals significant psychological distress and behavioural reactions as induced by covert abrasive behaviours



Provides new directions for future research on the old EE construct



Inspires insights to enhance content validity of EE, and



Offers a framework in future development of EE measure that covers both overt and covert abrasive behaviours

## More details here.....

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Ng, S.M., Fung, M.H.Y., & Gao, S.Y. (2020, Nov. 4). High level of expressed emotions in the family of people with schizophrenia: has a covert abrasive behaviours component been overlooked? *Heliyon*. 6(2020):e05441. DOI: 10.1016/j.heliyon.2020.e05441

# Thank you!



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