ACBS World Conference

DUBLIN, IRELAND

25-30 June, 2019

Disclosures (support)

- This study was supported by the General Research Fund, Research Grant Council of the University Grants Committee, The HKSAR's Government (144036/14H) & HKPolyU Central Research Fund.
- Grant holder: Yim Wah MAK
- Co-I: Alice Yuen LOKE
- The General Research Fund, Research Grant Council of the University Grants Committee of The HKSAR's Government had no role in the design, and conduct of the study; collection, management, analysis, or interpretation of the data; preparation, review, or approval of this report.

Acknowledgements

- **Thanks the participants of this study for generously donating their time.**
- **Conducted interventions: SH, WL**
- **Project coordination, subject recruitment, data collection and data management: MW and FW**

- **Appreciation for the support in subject recruitment given by the staff of the following organizations:**
  - Baptist Oi Kwan Social Service - Yan Kwan Integrated Community Centre for Mental Wellness
  - Caritas Hong Kong (2 locations)
  - Christian Family Service Centre (4 locations)
  - New Life Psychiatric Rehabilitation Association (18 locations)
  - Po Leung Kuk Tin Shui Wai Rehabilitation Centre
  - Richmond Fellowship of Hong Kong - Wan Tsui House
  - The Mental Health Association of Hong Kong (2 locations)
  - The Society of Rehabilitation and Crime Prevention, Hong Kong (5 locations)
  - Tung Wah Group of Hospitals - Yeung Sing Memorial Long Stay Care Home
- **Private Rehabilitation Settings**
  - Colourful Home (Kowloon City)
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  - Tung Hoi Association for the gifted child limited
  - Yuen Long Kei Tak Rehabilitation Home

School of Nursing 護理學院

創新護理 惠澤全人

MAK Yim Wah 麥豔華
(email: yw.mak@polyu.edu.hk)
Associate Professor
Registered Nurse, Registered Midwife,
Trainer for Tobacco Control Specialist
FHKAN Fellow (Education), FHKAN Fellow (Community Health)

27 June 2019 (session: 1320-1450)

Acceptance and Commitment Therapy in smoking cessation for people with schizophrenia: a randomized controlled trial

采用ACT为精神分裂患者戒烟: 随机对照试验

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Opening Minds • Shaping the Future
啟迪思維 • 成就未來

World Health Organization

- For every year, 700,000 die due to smoking.
- In 2030, death rates will increase to 800,000.
- During the 21st Century, tobacco use could kill 1 billion.

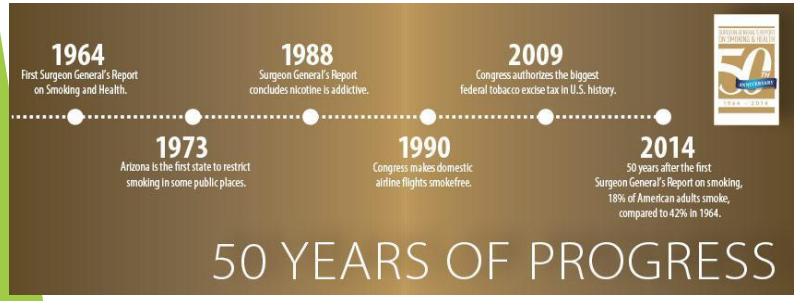
World Health Organization: WHO Report on the Global Tobacco Epidemic, 2017

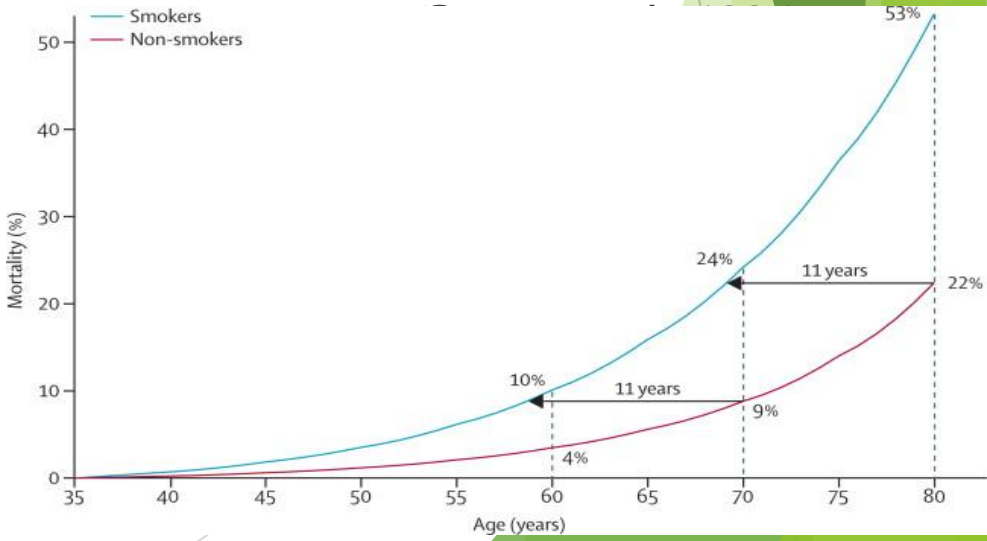
- The number of deaths due to exposure to SHS is estimated to the approximately 600,000 each year worldwide

World Health Organization. (2009). *WHO Report on the Global Tobacco Epidemic, 2009: implementing smoke-free environments: executive summary* (No. WHO/NMH/TFI/09.1). Geneva: World Health Organization.

High Risk

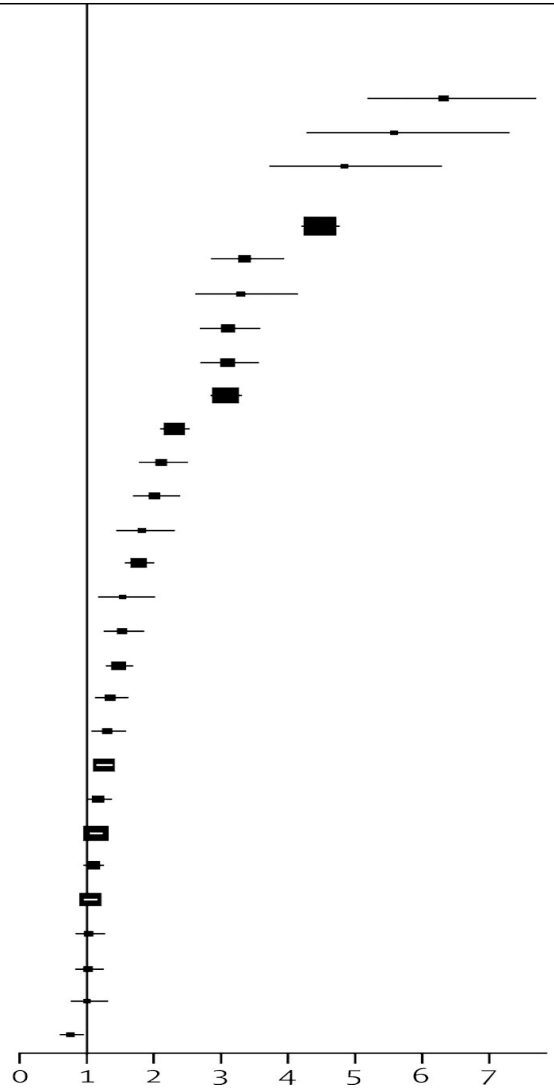
- 50% of long term smokers will die due to smoking (1/2)
- A quarter of them will between 35-69 years old;
- (1/4)
- A quarter will die at aged 70 or above; (1/4)
- Life span will be shortened by 10 years on average





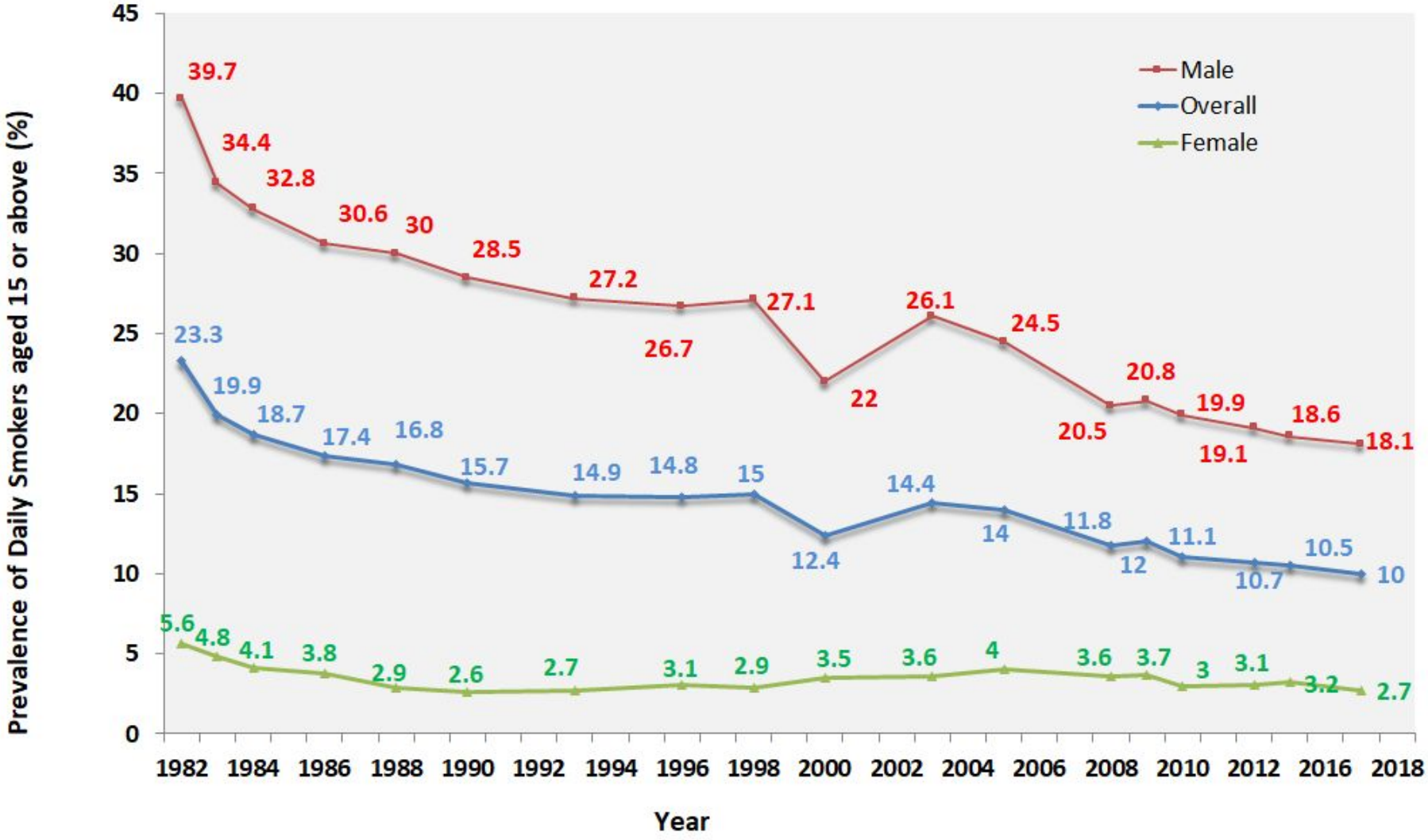
30 most common specific causes of death (ICD-10): 12-year relative risk, current vs. never-smoker

	Number of deaths		RR (95% CI)
	Current smoker	Never smoker	
Chronic lung disease (J40–44)	1789	121	**35·3 (29·2–42·5)**
Cancer of lung (C34)	5633	698	**21·4 (19·7–23·2)**
Aortic aneurysm (I71)	330	164	6·32 (5·17–7·71)
Intestinal ischaemia (K55)	183	91	5·58 (4·27–7·29)
Cancer of mouth, pharynx, larynx, nasal cavity, or sinuses (C00–14,30–32)	204	91	4·83 (3·72–6·29)
Coronary heart disease (I21–25)	2726	1732	4·47 (4·19–4·77)
Cirrhosis or alcoholic liver (K70,74)	478	256	3·35 (2·84–3·94)
Cancer of bladder (C67)	178	156	3·29 (2·61–4·15)
Cancer of oesophagus (C15)	450	397	3·10 (2·68–3·58)
Pneumonia (J12–18)	494	408	3·09 (2·68–3·56)
Cerebrovascular disease (I60–69)	1528	1458	3·06 (2·83–3·31)
Cancer of pancreas (C25)	809	1082	2·30 (2·08–2·53)
Cancer of kidney (C64)	246	360	2·10 (1·77–2·50)
Cancer of stomach (C16)	247	329	2·00 (1·67–2·39)
Diabetes (E10–14)	122	192	1·81 (1·43–2·31)
External causes* (V01–Y98)	487	677	1·76 (1·56–2·00)
Pulmonary fibrosis (J84·1)	88	162	1·53 (1·16–2·01)
Cancer of liver (C22)	171	319	1·52 (1·24–1·85)
Venous thromboembolism (I26,80–82)	327	669	1·46 (1·27–1·68)
Leukaemia (C91–95)	176	416	1·34 (1·11–1·62)
Motor neurone disease (G12·2)	154	374	1·29 (1·06–1·58)
Cancer of large intestine (C18–20)	685	1671	1·25 (1·14–1·37)
Non–Hodgkin lymphoma (C82–85)	214	561	1·16 (0·98–1·37)
Cancer of breast (C50)	912	2295	1·13 (1·04–1·22)
Brain tumours (C71,D43)	284	787	1·08 (0·94–1·25)
Cancer of ovary (C56)	663	1953	1·04 (0·95–1·15)
Multiple myeloma (C90)	120	385	1·02 (0·82–1·27)
Alzheimer's and dementia (F03,G30)	129	400	1·01 (0·82–1·24)
Melanoma (C43)	73	220	0·99 (0·75–1·31)
Cancer of endometrium (C54)	84	393	0·75 (0·58–0·95)



Pirie, K., Peto, R., Reeves, G. K., Green, J., Beral, V., & Million Women Study Collaborators. (2013). The 21st century hazards of smoking and benefits of stopping: a prospective study of one million women in the UK. *The Lancet*, *381*(9861), 133-141.

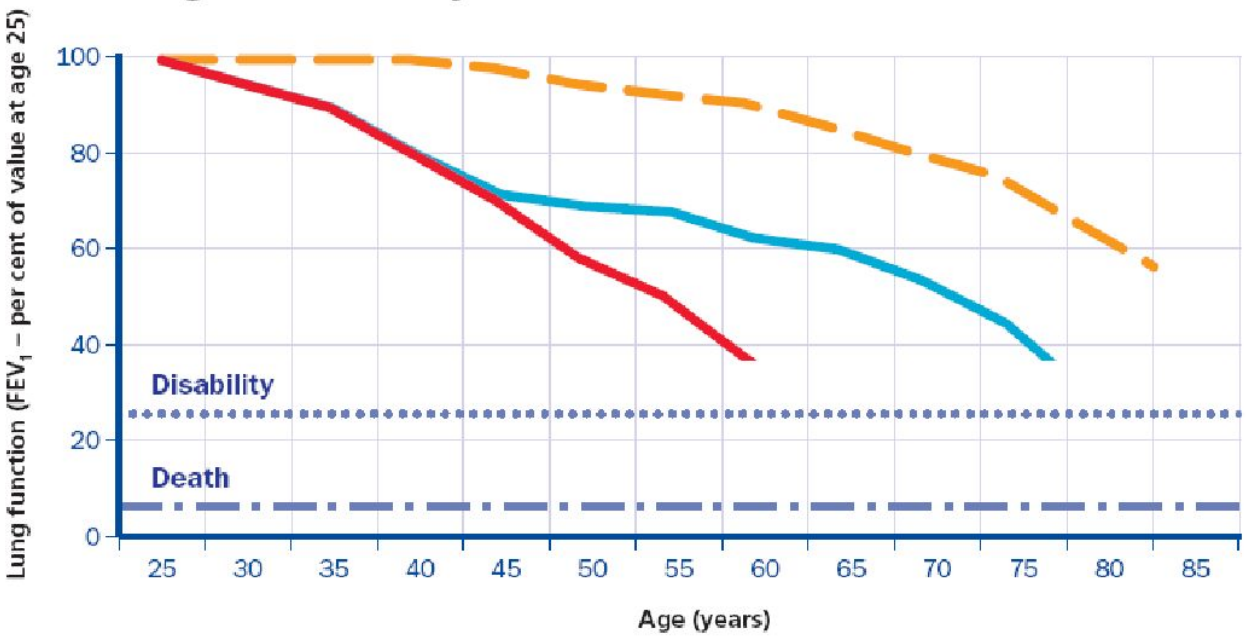
Daily Smoking Prevalence in Hong Kong



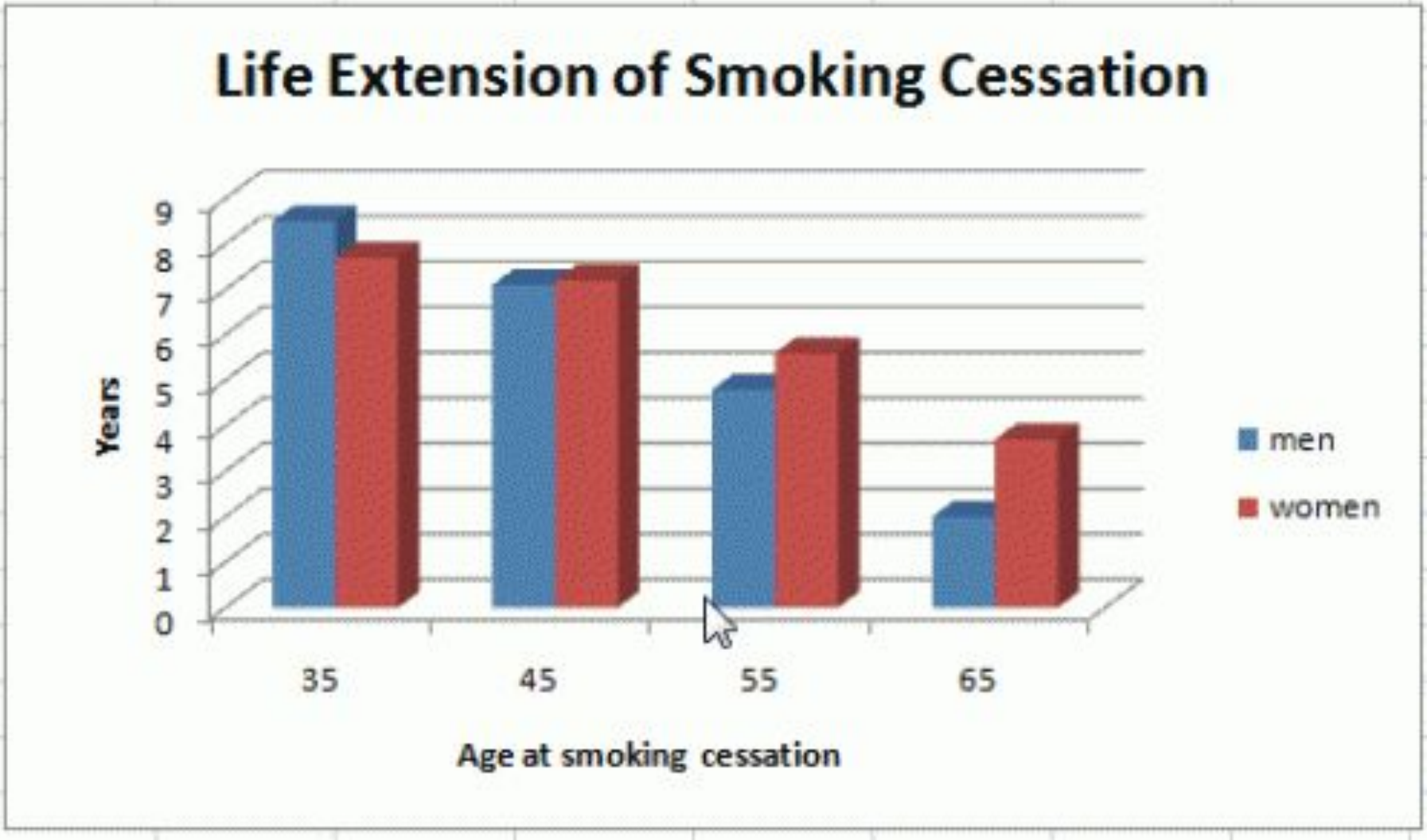
Smoking leads to death among people with schizophrenia

- The prevalence of smoking has been reported to be highest among people with schizophrenia, ranging from **54%-90%** (McClave, McKnight-Eily, Davis, & Dube, 2010)
- This is more than two to three times higher than that of the general population (Ziedonis et al., 2008)
- Cessation rates among people with schizophrenia are very low (de Leon, Diaz, Josiassen, Cooper, & Simpson, 2005)

- Often use cigarettes to self-medicate to compensate for deficits associated with the illness, antipsychotic medications, or both (Combs & Advokat, 2000).
- This elevated smoking rate is a potential cause of the increased risk of premature death due to medical illnesses, including cardiovascular diseases and cancers, among people with schizophrenia (Olfson, Gerhard, Huang, Crystal & Stroup, 2015)



Source: Health Education Authority, 1994. Adapted from Fletcher & Peto 1977.



Taylor D., Hasselblad, V., Henley S.,Thun, M and Sloan, F. (2002). Benefits of Smoking Cessation for Longevity. American Journal of Public Health. 92, 6, 990-996.

Benefits of quitting

- Save money
- Provide your beloved ones with a smoke-free environment
- Be free from the odour of smoking
- Get rid of tar-stained teeth and fingers
- Establish a healthy look
- Improve your sense of taste and smell
- Be less likely in getting heart disease, stroke or cancer
- Provide a friendly environment

Pharmacological smoking cessation intervention

- One of the major interventions (Tsoi, Porwal, & Webster, 2010)
- Bupropion (安非他酮)
  - Side-effects: dry mouth, jitteriness, light-headedness, muscle stiffness, frequent nocturia, and decreased concentration have been reported(George et al., 2002)
- Nicotine replacement therapy (NRT) (尼古丁替代療法)
  - Efficacious for use in smoking cessation
  - But also increase in involuntary movements (Stead, Perera, Bullen, Mant, & Lancaster, 2008)
- Pharmacological treatment
  - Only reduces but does not eliminate negative affect, withdrawal symptoms, and cravings (Gifford et al., 2011)
  - Cannot resolve the conditioned relationships caused by nicotine

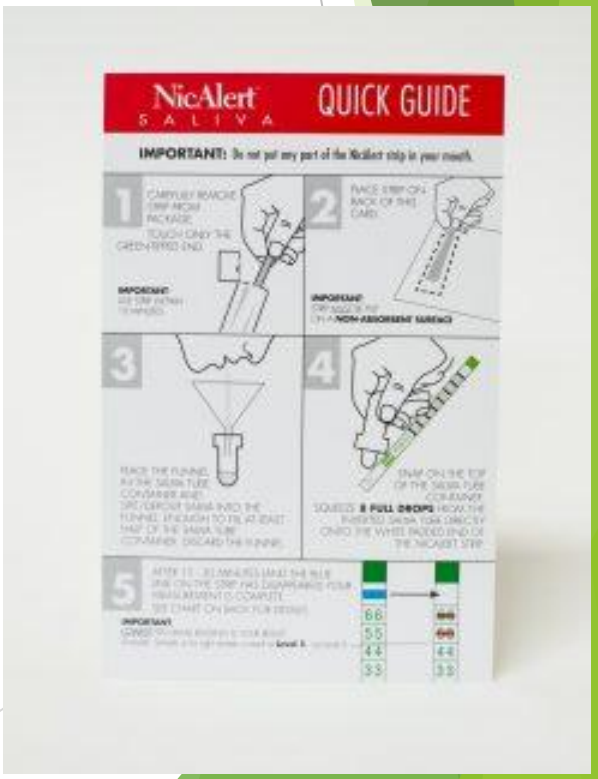
Acceptance and Commitment Therapy

- A newer psychotherapy incorporates **acceptance (接納), mindfulness (正念), and values clarification (價值觀澄清)** to enhance traditional behavioural interventions (傳統行為介入)
- Goal
  - **Increase psychological flexibility (心理彈性)**, the ability to contact the present moment more fully, and to quit smoking when doing so serves valued ends.
- Characteristics
  - Focuses on **modifying the individual's relationship to his or her thinking**
  - Encourages individual to **accept and experience internal events non-judgmentally** (i.e. mindfully), while simultaneously working toward the pursuit of personally defined behavioural goals (Hayes, 1993)
  - Does not teach skills to control or avoid the triggers
  - A recent **systematic review** indicates its **potential efficacy** with control conditions on mood and behavioural treatment among adults with mental and physical health problem including depression, anxiety disorders and addiction (A-tjak et al., 2015)

Study design

Prospective, two groups, parallel RCT

- comparing a 10 weekly individual, face-to-face ACT versus educational control in enhancing smoking cessation for people with schizophrenia.
- The primary outcome: self-reported smoking abstinence for 7 days prior to the 6th month after Intervention started.
- Secondary objectives: self-report and bio-chemically validated quit rates post intervention.
- We also measured psychological flexibility (PF).
- Assessments were performed at baseline before the start of the intervention, at post-intervention (3-month), 6-month and 12-month after initial session of intervention.



Methods

Participants

- Inclusion criteria (納入條件)
  - Aged 18 years or above
  - Have been diagnosed with schizophrenia by psychiatrists
  - Smoke at least 1 cigarette/day in the past 7 days
  - Able to communicate in Cantonese
  - Able to express ideas clearly and accurately
- Exclusion criteria (排除條件)
  - Have disorientation (意識不清醒), developmental disabilities (發展障礙), and/or organic conditions
  - Have a diagnosis of substance abuse (濫藥) in the preceding year of recruitment
  - Have medication regime (用藥管理) revised in the last 3 months
  - Currently participate in a smoking cessation programme

Settings

- **Subjects recruited from 51 locations**
- **Some of NGOs are residential settings (院舍) which provide:**
  - Therapeutic community environment
  - Staff available at all times
  - Group and community activities
  - Individual counseling, and living skills training
- **All private settings are residential home (私營院舍)**
- **Residents**
  - Clients with mental disorders at the rehabilitation stage
  - Currently mentally stable and physically health
  - Comply with prescribed medication regime under supervision.

Non-governmental Organisations (NGOs)

- Baptist Oi Kwan Social Service (1 unit)
- Caritas Hong Kong (2 units)
- Christian Family Service Centre (4 units)
- Po Leung Kuk (1 unit)
- New Life Psychiatric Rehabilitation Association (18 units)
- Richmond Fellowship of Hong Kong (1 unit)
- The Mental Health Association of Hong Kong (2 units)
- The Society of Rehabilitation and Crime Prevention, Hong Kong (5 units)
- Tung Wah Group of Hospitals (1 unit)

Private Rehabilitation Settings

- Colourful Home (Kowloon City)
- Eminent Rehabilitation Center Co. Ltd.
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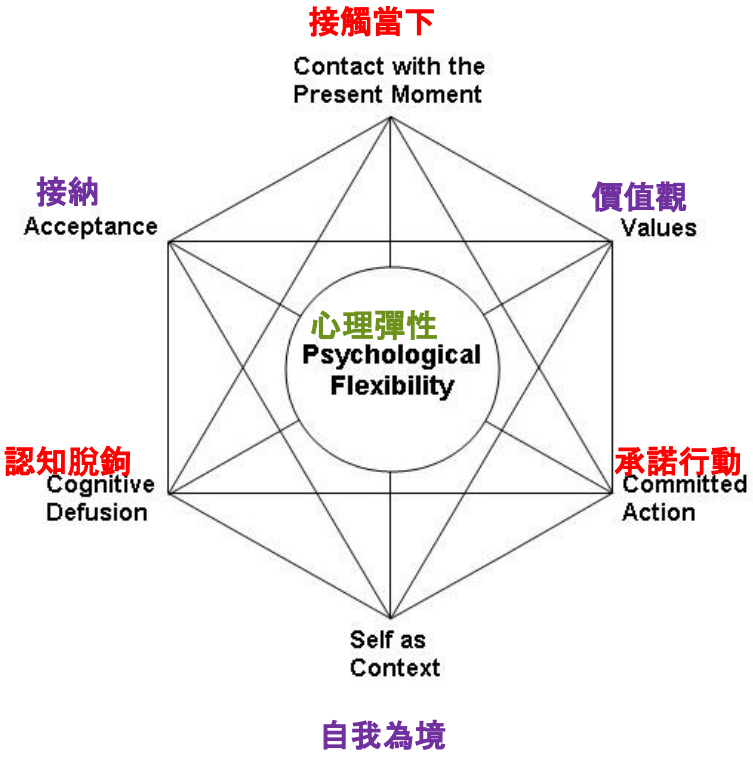
- Parklane Rehabilitation Home
- Pui Chak Association for the Mentally Handicapped
- Shun Yan Rehabilitation Home
- Sing Hong Association Rehabilitation Centre
- The never-land for mental health services of Hong Kong
- Tung Hoi Association for the gifted child limited
- Yuen Long Kei Tak Rehabilitation Home

Two Intervention conditions

	ACT Intervention group	Control group
Similarity	5-minute brief educational talk encouraging smoking cessation a self-help written leaflet on smoking cessation	Same as the intervention group
Difference	**Using ACT** 20-30 per session 10 sessions	**Reinforce the information provided from the self-help written leaflet** 10-15mins / session 10 sessions

Use of Acceptance and Commitment Therapy (ACT1) for smoking cessation

- Purpose (焦點)
  - Increasing the **psychological flexibility (心理彈性)** of the participants for smoking cessation
  - **Through 6 core processes: flexible attention to the present moment (接觸當下), chosen values, committed action; self-as-context; defusion; and acceptance.**
- **Mindfulness skills** and **an experiential exercises** were used - **Increasing willingness to experience** physical cravings
- **Acceptance (接納)** means making room for
  - Intense physical cravings (e.g., urges to smoke)
- **Commitment (承諾)**
  - articulating what is **deeply meaningful** to participants —i.e., their **values (價值觀)** —to motivate and guide them for quitting smoking **(values價值觀 + committed action 承諾行動)**
- Creating a distinction between the client's self-story **(self as context 自我為境)** and use experiential exercise to promote **defusion (認知脫鉤)**
  - Emotions (e.g., sadness that triggers smoking)
  - Thoughts (e.g., thoughts that trigger smoking) while **allowing them to come and go**



Strategic Interventions of ACT (策略性介入)

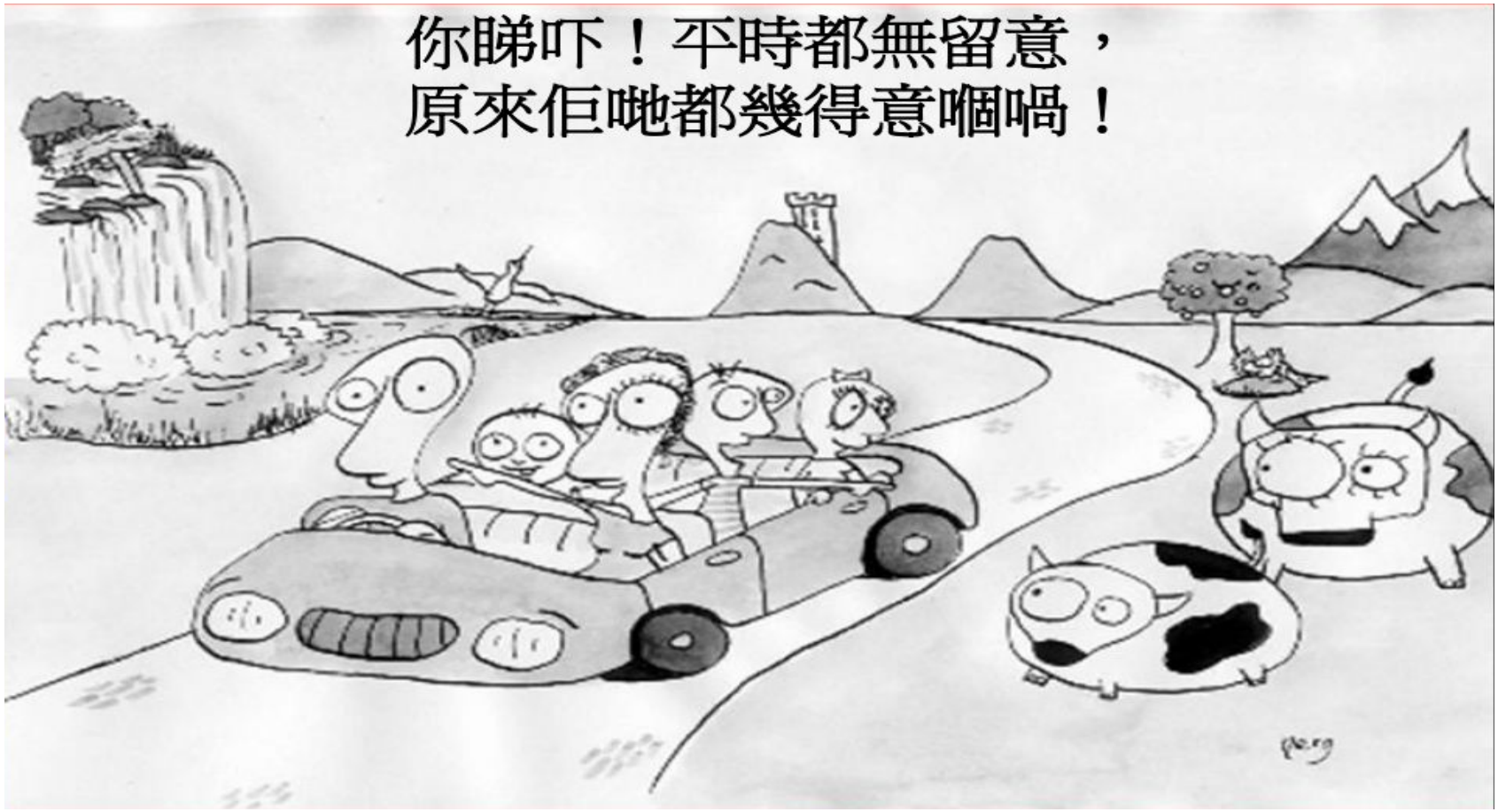
Session	Purpose (目的)	Strategies (策略)	Materials used/ Remarks
1 & 2	Train up client's present moment awareness (訓練案主當下意識)	Mindfulness body scan or mindfulness stretching (正念身體掃描/伸展)	
1 & 2	Explore and strengthen client's own initiatives in smoking cessation (探索及加強案主戒煙的主動性)	Exploration of values (發掘價值觀)	Most clients were encouraged by hostel's staff to come
1 & 2	Let client be mindful of the craving experience (讓案主覺察自己的煙癮)	Craving experiment at a particular hour on a particular day in the coming week (決定進行煙癮測試的時間和日子)	It paves the way to discuss their craving experience Bonus: client gain confidence in abstinence if he/she did not smoke in the experiment
3 onwards	Create a little psychological gap between client and his/her craving (在案主及他們的煙癮之間制造一些心理空隙)	Tug of war with Monster (與怪獸拔河)	Tools: rope (繩索), a paper with circle representing a trap
3 onwards	Use watching TV as a metaphor to create hopelessness (用看電視作比喻制造無望感)	Watching TV metaphor (看電視比喻)	Clients are debriefed that craving comes and goes like images on TV. You have no control over the images.

Strategic Interventions of ACT (策略性介入)

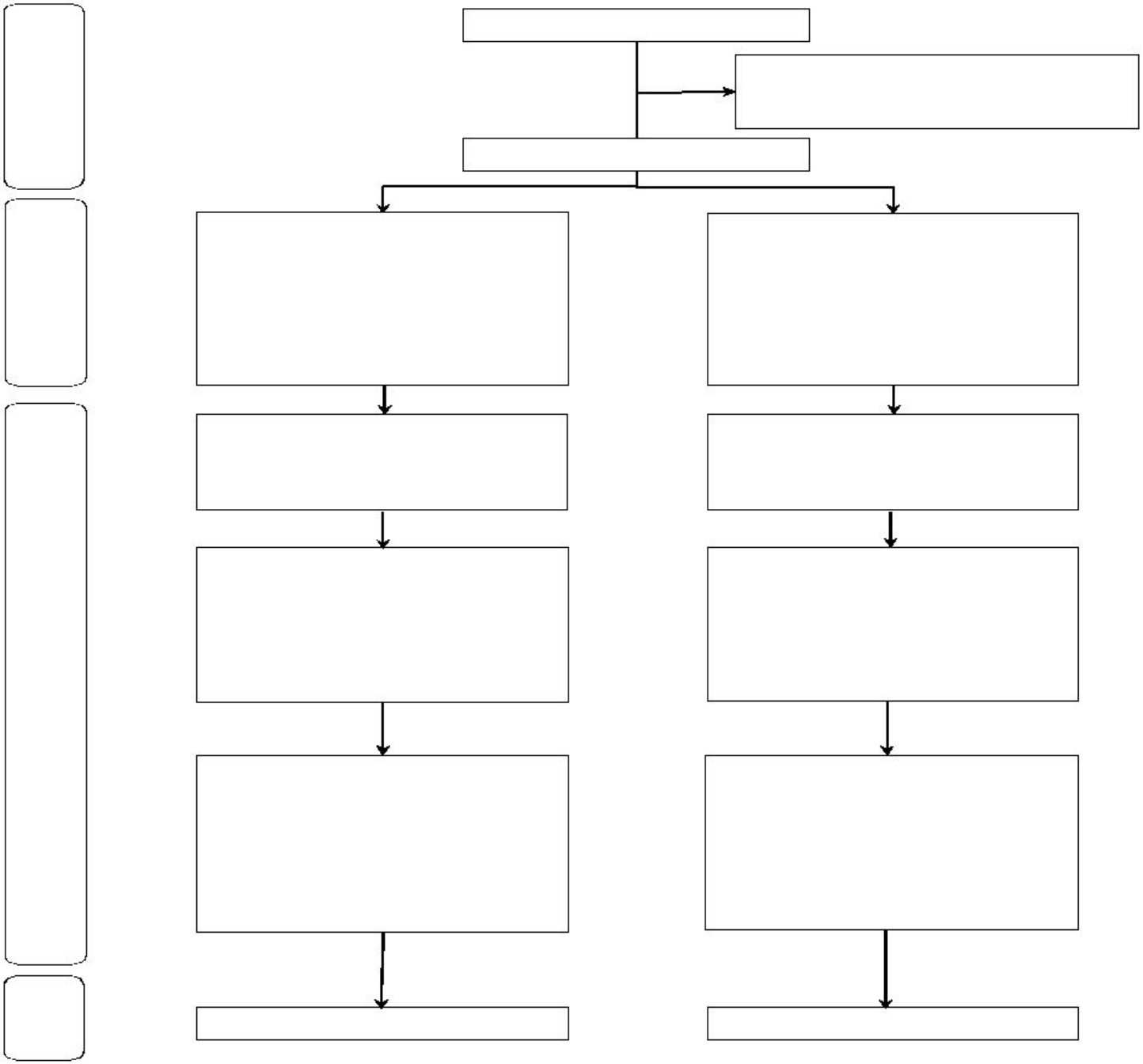
Session	Purpose	Strategies	Materials used/Remarks
3 & 4	Clients are led to accept craving as part of their living, similar to waiting for meals for more than half an hour after placing the order, which is a very common experience for everyone (引導案主接受煙癮是生活的一部份，好像在等待遲來的午餐一樣)	Late lunch metaphor (遲來的午飯)	
5 to 6	Further defuse the client's clinging on smoking (進一步將案主對煙草的依附脫鉤)	Exercise: The song of craving (煙癮之歌)	Clients are guided in a step by step manner to sing out their thoughts of craving, like "I wanna so much to smoke now"
5 onwards	Review and evaluate every session to keep the patient on track (檢視及評估每一節的進度)	Fine-tune goals and strategies after session 5. (調整第五節後的目標及策略)	
7 onwards	Energize the client that they can always re-start cessation process any time they deem desirable. (激勵案主每當想戒煙時，便隨時隨地開始戒)	Metaphor: The earth walker (大地行者)	Debriefing: you can always re-start cessation anytime, like going anywhere on earth once you have decided and get moving.

ANXIETY
UNWORTHINESS
SELF DOUBT
FEAR
SELF DOUBT
UNWORTHINESS


到未，好X煩！！！xY@#Z*&!?


你睇吓！平時都無留意，
原來佢哋都幾得意嘅喎！

Study Flow Chart



Baseline characteristics of participants (N=130)

	ACT (n=65) M(SD) / *N(%)*	Control (n=65) M(SD) / *N(%)*	*p*
Age	49.7 (11.3)	50.0 (12.0)	.88
Gender, Male	*59 (90.8%)*	*53 (81.5%)*	.13
Education attainment			.08
Primary level or below	*19 (29.2%)*	*15 (23.1%)*	
Secondary level	*45 (69.2%)*	*43 (66.2%)*	
Tertiary level or above	*1 (1.5%)*	*7 (10.8%)*	
Marital status			0.76
Single	*43 (66.2%)*	*41 (63.1%)*	
Married	*14 (21.5%)*	*13 (2.0%)*	
Divorced/Separated/Widowed	*8 (12.3%)*	*11 (16.9%)*	
Onset of schizophrenia, year	19.9 (13.6)	20.9 (12.6)	.68

Baseline characteristics of participants (N=130)

	ACT (n=65) *M(SD) / N(%)*	Control (n=65) *M(SD) / N(%)*	*p*
Number of cigarette consumed per day	11.2 (7.7)	13.5 (9.7)	.15
Year of smoking	27.6 (13.5)	28.3 (13.6)	.75
Pack years	14.7 (13.5)	19.4 (15.8)	.07
Exhaled CO	16.0 (12.9)	17.1 (15.2)	.67
Nicotine Dependence	3.7 (2.1)	4.2 (2.4)	.29
Have previous quit attempt	*30 (46.2%)*	*27 (41.5%)*	.60
Stages of change			.24
Pre-contemplation	*27 (41.5%)*	*36 (55.4%)*	
Contemplation	*8 (12.3%)*	*8 (12.3%)*	
Preparation	*30 (46.2%)*	*21 (32.3%)*	

Baseline characteristics of participants(N=130)

	ACT (n=65) M(SD) / *N(%)*	Control (n=65) M(SD) / *N(%)*	*p*
Montreal Cognitive Assessment (MoCA)	19.4 (6.0)	21.4 (5.2)	0.20
General self-efficacy	26.5 (8.3)	25.8(6.9)	0.58
AIS score	41.0 (9.0)	38.4 (8.8)	0.14
AAQII	27.3 (9.9)	26.3 (10.0)	0.54
ERQ			
Cognitive reappraisal	18.1 (9.6)	18.9 (8.0)	0.62
Suppression	12.8 (6.2)	13.9 (6.2)	0.30
Self-efficacy in quitting			
Perceived importance to quit	61.0 (32.8)	57.4 (34.7)	.55
Perceived difficulty in quitting	55.2 (32.8)	62.2 (34.9)	.25
Perceived confidence in being able to quit	43.8 (27.6)	40.6 (35.9)	.57

Results on Smoking-related outcomes

	ACT (N=65) n (%)	Control (N=65) n (%)	p^+
Primary outcome at 6 months			
Self-reported quitting	8 (12.3%)	5 (7.7%)	0.56
Secondary outcomes			
Self-reported quitting at 12 months	7 (10.8%)	5 (7.7%)	0.76
Biochemically validated quitting at 6 months	6 (9.2%)	3 (4.6%)	0.49
Biochemically validated quitting at 12 months	6 (9.2%)	4 (6.2%)	0.74
Self-reported reduction in smoking ≥50% at 6 months	21 (32.3)	23 (35.4)	0.85
Self-reported reduction in smoking ≥50% at 12 months	24 (36.9)	23 (35.4)	1.00
Had quit attempt within 6 months	17 (26.2%)	20 (30.8%)	0.70
Had quit attempt within 12 months	18 (27.7%)	28 (43.1%)	0.09

GEE Results on Process Measures Over Time

Table 6. GEE results on changes in process measures over time by groups

	ACT (N=65)	Social Support (N=65)	Change from baseline		
	Estimated Mean±SE	Estimated Mean±SE	Between-group difference (95% CI)	p-value	Effect size
CO					
Baseline	16.02±1.77	15.96±1.64			
6 months	13.67±1.92	15.81±1.72	-2.20 (-7.04, 2.64)	0.37	-0.11
12 months	11.07±1.58	16.89±2.31	-5.88 (-11.07, -0.69)	0.03	-0.28
AIS Total score					
Baseline	39.08±1.92	41.50±1.57			
3 months	41.87±1.52	41.11±1.28	3.17 (-1.75, 8.09)	0.21	0.16
6 months	39.33±1.64	42.73±1.55	-0.98 (-6.35, 4.39)	0.72	-0.05
12 months	38.07±1.94	41.61±1.57	-0.52 (-1.17, 0.12)	0.11	-0.20
AIS Physical					
Baseline	12.08±0.67	10.26±0.75			
3 months	11.96±0.58	11.98±0.64	-1.84 (-3.91, 0.22)	0.08	-0.22
6 months	11.58±0.56	12.10±0.71	-2.34 (-4.71, 0.02)	0.05	-0.25
12 months	11.56±0.73	11.89±0.81	-3.15 (-5.84, -0.46)	0.02	-0.29
ERQ-Cognitive Reappraisal					
Baseline	18.42±1.31	18.81±1.02			
3 months	14.58±1.21	18.93±0.96	-3.96 (-7.44, -0.47)	0.03	-0.28
6 months	19.70±1.17	18.89±1.26	1.20 (-2.24, 4.64)	0.49	0.09
12 months	16.85±1.50	17.39±1.08	-0.15 (-4.05, 3.75)	0.94	-0.01
ERQ-Suppression					
Baseline	13.08±0.90	13.61±0.78			
3 months	10.01±0.74	14.93±0.66	-4.39 (-6.82, -1.95)	<0.001	-0.45
6 months	13.07±0.84	12.77±0.85	0.84 (-2.02, 3.70)	0.57	0.07
12 months	14.36±0.83	12.52±0.79	2.38 (-0.68, 5.43)	0.13	0.19

AIS, Aviodance and Inflexibility Scale; AAQII, Acceptance and Action Questionnaire II; ERQ-Cognitive Reappraisal, Emotional Regulation Questionnaire- Cognitive Reappriasal subscale; ERQ-Suppression, Emotional Regulation Questionnaire-Suppression subscale; SE, standard error.

Conclusion

- This is the first report of RCT for which ACT was used in smoking cessation for helping individuals who co-ocurred of schizophrenia and smoked.
- found that ACT decreases avoidance and inflexibility but did not increases smoking cessation success rates.
- Strengths: it reached one of the most high prevalent and vulnerable group of smokers
- A rigorous measure of abstinence with both self-reported response and biochemical verification.
- Results: ACT involves a significant increase in psychologicial flexibility through acceptance of cravings and withdrawal symptoms
- The process of identifying avoidant behavior and developing a more flexible approach to addressing it is central to this intervention.

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Thank you very much