HKU Study Shows that Quitting Smoking Can Improve Erectile Dysfunction (ED)

Professor LAM Tai-hing
School of Public Health, The University of Hong Kong Li Ka Shing Faculty of Medicine

Professor Sophia Chan
School of Nursing, The University of Hong Kong Li Ka Shing Faculty of Medicine

Dr. Sue Lo
Family Planning Association of Hong Kong

Ms Lisa Lau
Hong Kong Council on Smoking and Health

Section 1 – Introduction

By Prof TH Lam

Research Team

Professor TH Lam, School of Public Health, HKU (PI)
Professor Sophia Chan, School of Nursing, HKU
Dr. Doris Leung, School of Nursing, HKU
Dr. Sai-Yin Ho, School of Public Health, HKU
Dr. Andrew Yip, Department of Surgery, Kwong Wah Hospital
Dr. Sue Lo, Family Planning Association of Hong Kong
Dr. Wai-Mong Kok, Family Planning Association of Hong Kong
Dr. A.S.M. Abdullah, School of Public Health, Boston University

3

Research background

- Erectile dysfunction (ED) is a prevalent health problem with considerate impact on the quality-of-life of middle-age
- Recent data suggests an independent and dose-response relationship between smoking and risk of ED[1]
- Another cross-sectional study in China Mainland further showed an increasing trend in the risk of ED with cigarette smoking[2]
- ED is an important smoking-related health problem which can potentially command more attention among young people and stronger motivation to quit than other diseases

References:
1. Lam TH, Abdullah ASM, Ho LM, Yip AWC, Fan S. Smoking and sexual dysfunction in Chinese males: findings from men's health survey. *Int J Impot Res* 2006;18:364-369.
2. He J, Reynolds K, Chen J, Chen CS, Wu X, Duan X, et al. Cigarette smoking and erectile dysfunction among Chinese men without clinical vascular disease. *Am J Epidemiol* 2007;166:803-809.

4

Research background

Smoking and reproductive life

The impact of smoking on sexual, reproductive and child health

British Medical Association
Board of Science and Education
& Tobacco Control Resource Centre

www.bma.org.uk

International Findings (2004)

- there is substantial evidence that smoking causes impotence
- smokers have 50% higher risk of becoming impotence
- the risk increases with the increase of number of cigarettes smoked and the duration of smoking

Reference:

http://www.bma.org.uk/ap.nsf/Content/SmokingReproductiveLife/$file/Smoking.pdf

5

Research background - Hong Kong study

Based on a previous Hong Kong survey, smoking is associated with erectile dysfunction

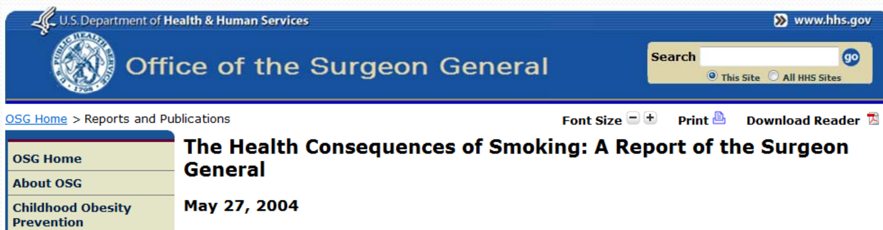
- Current smokers who smoke ≥ 20 cigs daily have 50% ↑ risk of having erectile dysfunction than never smokers
- Ex-smokers have 30% ↓ risk of having erectile dysfunction than current smokers who smoke ≥ 20 cigs per day

More research will be done to further confirm the <u>causal</u> relationship between erectile dysfunction and smoking

(Lam et al. Int J Impot Res 2006;18:364-9)

6

Research background – International studies



"The evidence is suggestive but not sufficient to infer a causal relationship between smoking and erectile dysfunction"
(U.S. Surgeon General Report 2004)

Reference: U.S. Department of Health and Human Services. The Health Consequences of Smoking: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004.

International Journal of
Impotence Research
The Journal of Sexual Medicine

ORIGINAL ARTICLE

Smoking and sexual dysfunction in Chinese males: findings from men's health survey

TH Lam[1], ASM Abdullah[1,2], LM Ho[1], AWC Yip[3] and S Fan[4]

[1]*Department of Community Medicine, Faculty of Medicine, The University of Hong Kong, Hong Kong, China;* [2]*Department of International Health, Boston University School of Public Health, Boston, MA, USA;* [3]*Department of Surgery, Kwong Wah Hospital, Hong Kong, China and* [4]*The Family Planning Association of Hong Kong, Hong Kong, China*

To describe the prevalence of erectile dysfunction (ED) and its association with smoking among the Chinese in Hong Kong, we conducted a cross-sectional study among 819 men (aged 31–60 years) who were randomly selected among the Hong Kong residents and interviewed by trained interviewers. A structured questionnaire was used for data collection. We found that current smokers who smoked 20 cigarettes or more daily had more dissatisfaction, erection difficulty and ED than never smokers. The prevalence of dissatisfaction, difficulty in erection and ED increased significantly ($P<0.05$) with increasing age. Compared with never-smokers, current smokers of more than 20 cigarettes daily had a greater risk of ED (age-adjusted odds ratio = 1.47, 95% confidence interval: 1.00–2.16). Our results support that there are association between ED and smoking among the Chinese and suggest linking ED with smoking in the antismoking campaign and promoting smoking cessation to reduce ED among smokers.

International Journal of Impotence Research advance online publication, 15 December 2005; doi:10.1038/sj.ijir.3901436

Keywords: erectile dysfunction; smoking; smoking cessation; Chinese

Governments' Action - Health Warning

- WHO recommended MPOWER: Health message is displayed on the package of tobacco products.
- However, some governments state:

"Smoking *causes* impotent", while others state

"Smoking *may cause* impotent".

9

Canada's Action - Health Warning

- In June 2000, Canada is the first country to enforce a law on showing health information on tobacco product packaging.
- Of the 16 health messages, one stated that "Tobacco use can make you impotent".

References: Health Canada. Graphic Health Warnings. http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/legislation/label-etiquette/graph/impotent-impuissant4-eng.phpCanada. Accessed October 16, 2008.

10

International Health Warnings on "Smoking causes impotence"

Brazil (2009– present)

Egypt (2010–Present)

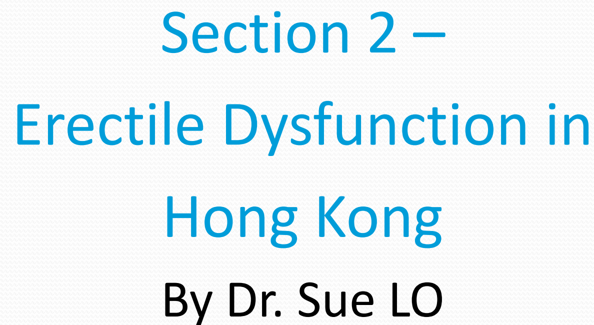
Venezuela (2009–present)

Smoking can damage the sperm and decreases fertility"
Latvia (2010–present)

Hong Kong's Action - Health Warning

- Health warnings should present at least 50% of the packet of any tobacco product.
- 6 forms of health warning was designed and one of them shows "Smoking may cause impotent".

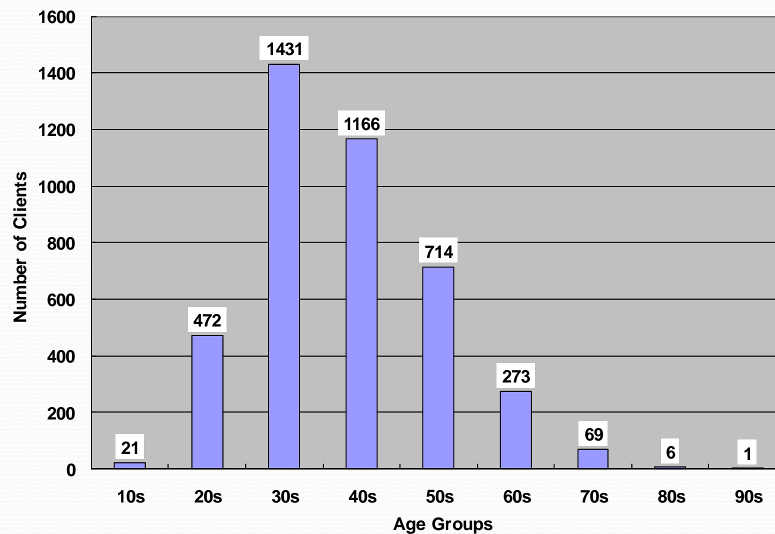
Reference: Tobacco Control Office, Department of Health, HKSAR Government. Smoking (Public Health) (Amendment) Bill 2005 Guidelines on Health Warning on Packet or Retail Container of Tobacco Products.



- Established in 2001
- 2001-2009 Total no. of clients : 15873
- Reasons for consultations:
  - Sexual dysfunctions : 35.7%
    - Erectile dysfunction : 26.2%
    - Other sexual dysfunctions : 9.5%
  - Urological / surgical problems: 26.2%
  - Sexually transmitted infections : 19.3%

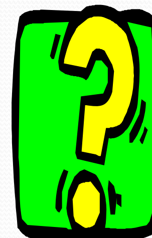
Total no. of Patients with Erectile Dysfunction (Since 2001) ： 4154

Age distribution



Causes for Erectile Dysfunction

- Psychological
- Physical
  - Ageing
  - Diabetes (5.4%)
  - Hypertension (9.1%)
  - Hyperlipidemia (6.9%)
  - Cardiovascular diseases (2.2%)
  - Smoking
  - Alcoholism



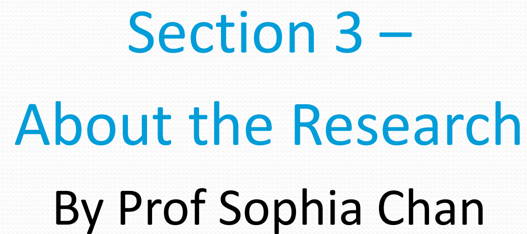
Smoking Habit & Pattern of ED patients

	Patients with Erectile Dysfunction
Non-smoker	3306
Smoker	848
	4154

20% were smokers
72% had smoked for >10 years
13% smoked > 20 cigarettes per day

Conclusion

- Seek professional assessment and help
- Aware of your own health
- Maintain healthy lifestyle



Section 3 – About the Research

By Prof Sophia Chan

Nicotine Replacement Therapy is useful in quitting

- Nicotine replacement therapy (NRT) can double the quit rate but few smokers using NRT adhere to the recommended treatment regimens[3]
- Burns et al[4] examined the reasons for non-adherence in smokers attempting to quit but there has been no report on intervention to increase NRT adherence.

References:
3. Killen JD, Fortmann SP, Davis L, Strausberg L, Varady A. Do heavy smokers benefit from higher dose nicotine patch therapy? *Exp Clin Psychopharmacol* 1999;7:226-233.
4. Burns EK, Levinson AH. Discontinuation of nicotine replacement therapy among smoking-cessation attempters *Am J Prev Med* 2008;34(3):212-215.

20

Objectives of the RCT

A Randomized Control Trial (RCT) was conducted to test:

- the effectiveness of a smoking cessation intervention among patients with ED.
- whether quitting smoking can improve in erectile function in ED patients who smoke
- The efficacy of an adherence intervention to increase NRT adherence among smoking patients with ED

21

Recruitment

- From January 2004 to April 2007
- Clients from KWH & Family Planning Association's ED clinics via physicians' referrals
- Referrals from other HA and private hospitals
- Clients in response to advertisements, press conferences & pamphlets distribution

22

Inclusion criteria

- Chinese male aged over 18
- Self-reported as currently having ED
- Smoked ≥ 1 cigarette per day
- Intended to quit within 7 days
- Would use NRT (no contraindication to NRT)
- Not following other forms of smoking cessation intervention

香港大學
THE UNIVERSITY OF HONG KONG

陽痿男士要戒煙？
速電6592 8001參加戒煙研究

吸煙與陽痿

免費的戒煙服務

我們歡迎符合以下條件人士參與是項戒煙計劃：
1. 患有陽痿的中國籍男性；
2. 年齡在18歲以上；
3. 每天最少抽煙一支；及
4. 有戒煙意向並同意使用尼古丁戒煙貼。

有意參加者，請電6592 8001或2819 2671查詢。
（所有資料將會絕對保密）

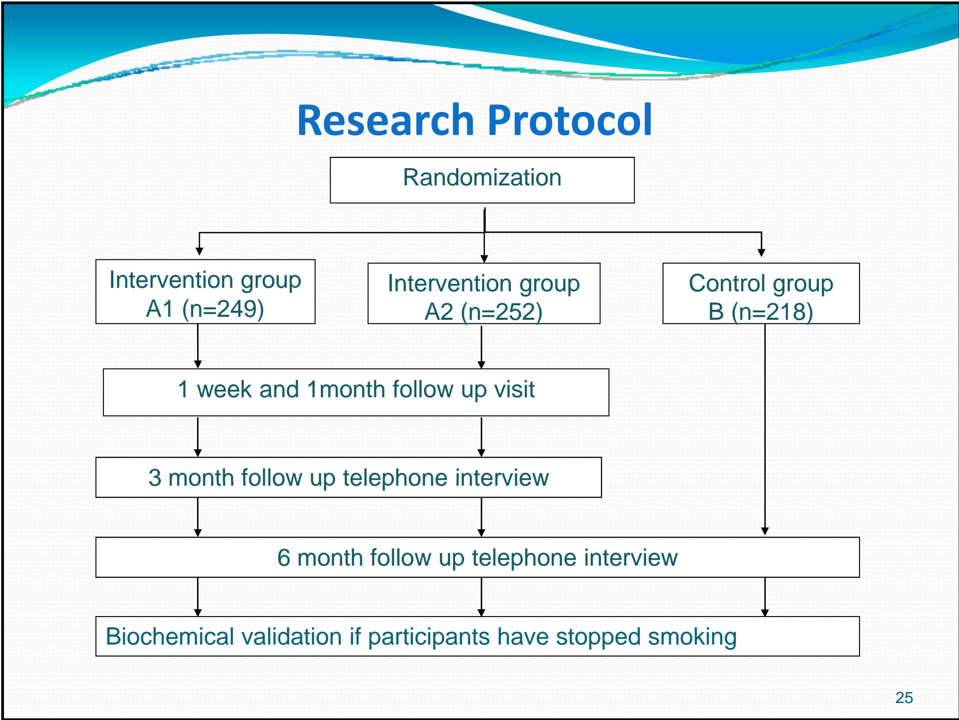
★對戒煙沒有信心？何不嘗試減少吸煙？香港大學現有研究協助吸煙人士逐漸減少吸煙，請電2819 2697 / 6752 6266查詢。

★青少年戒煙熱線：2855 9557或登入網址：http://www.hku.hk/yquit瀏覽。

Intervention

After giving consent, subjects will be randomized into 3 groups:

- *Intervention Group* (A1)
  Face-to-face individual counseling on quitting smoking + NRT + counseling on adherence to NRT use + smoking cessation pamphlet
- *Intervention Group* (A2)
  Face-to-face individual counseling on quitting smoking + NRT + smoking cessation pamphlet
- *Control Group* (B)
  Simple advice + smoking cessation pamphlet + Diet & health booklet



Smokers' profile when they enter the study (1)

- From Jan 2004 to April 2007 (40 months)
- Results of 719 subjects

Demographic characteristics	Mean/ Percent
Mean age (years)	48.9
Married (%)	80%
Educational level (%)	
- Primary or below	21%
- Secondary	66%
- Tertiary or above	13%

Results were similar for the 3 groups (A1, A2, B)

26

Smokers' profile when they enter the study (2)

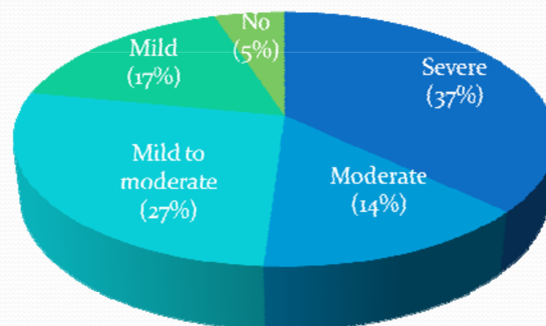
Smoking and quitting history (n = 719)	Mean/ Percent
Mean age to start smoking (years)	18.5
Average smoking history (years)	30.3
Average no. of daily cig smoked in past 30 days	20.6
Average nicotine addiction level (0-3 = low; 4-5 = moderate; 6-10=high)	4.5 (=moderate)
No. of quit attempts (%)	
- None	28%
- 1	21%
- 2-5	41%
- Over 5 times	10%

Results were similar for the 3 groups (A1, A2, B)

27

Severity of Erectile Dysfunction (ED)

Self-reported IIEF-5 score by stage



- The scale is used to measure erectile function and intercourse satisfaction.
- Over half of the participants reported for having moderate to severe ED

Results were similar for the 3 groups (A1, A2, B)

28

Outcomes at 6-month (1)

- Follow up rate: Intervention (73%), Control (72%)
  (Assume missing responses had negative outcomes)

Quitting status (Percent) (n = 719)	Intervention A1+A2 (n = 501)	Control B (n = 218)	Intervention vs. Control
Quit rate (self-reported 7-day point prevalence)	23.0%	12.8%	+79%
Quit rate (biochemically validated#) • exhaled CO > 8ppm • urine cotinine > 115ng/mL	11.4%	5.5%	+107%
Reduced daily smoking by half or more	42.5%	28%	+52%

 # Only 63% in the intervention (A1+A2) and 50% in the control (B) participated

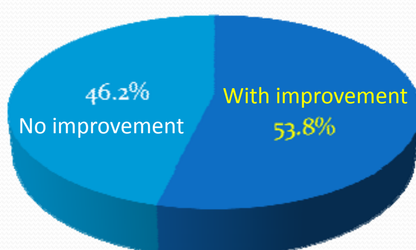
The quit rate of Intervention Gp (A1+A2) was significantly higher

29

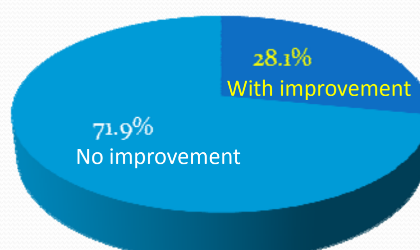
Outcomes at 6-month (2)

- Proportion of participants with improvement in erectile dysfunction (at least one stage on IIEF-5 score)

Quitted at 6-mth (n = 143)



Remained smoke at 6-mth (n = 576)



Extra benefits of quitting smoking to improve ED = +91.5%

30

Outcome: NRT adherence

Subjects adhered to NRT (%)	Intervention A1	Intervention A2
Adherence to NRT for 4 weeks at 1-month	13.7%	12.7%
Adherence to NRT for 8 weeks at 3-month	7.2%	3.6%

No significant difference between the 2 groups

31

Conclusion

- This is the first RCT to evaluate and assert that patient-centered counseling with NRT is effective in leading to smoking cessation and improvement in erectile dysfunction (ED)
- The results shows that patient-centered counseling with NRT is effective to help ED patients to quit smoking and reduce daily cigarette consumption
- ED patients who quit smoking had a higher chance (+91.5%) to improve their ED problem
- The findings should have a great impact on Chinese and other Asian populations as ED is more prevalent in Asian compared with Western populations.

32

American Journal of **Preventive Medicine**

Smoking-Cessation and Adherence Intervention Among Chinese Patients with Erectile Dysfunction

Sophia S.C. Chan, PhD, Doris Y.P. Leung, PhD, Abu S.M. Abdullah, PhD, Sue S.T. Lo, MD, Andrew W.C. Yip, MD, Wai-Ming Kok, MD, Sai-Yin Ho, PhD, Tai-Hing Lam, MD

Background: Whether the association between smoking and erectile dysfunction is causal is uncertain. No RCTs have been previously conducted on cessation counseling and additional nicotine replacement therapy (NRT) adherence counseling among smokers with erectile dysfunction.

Purpose: The aim of the study was to determine if smoking-cessation counseling in conjunction with NRT increases quitting and NRT adherence compared to usual care, and if stopping smoking would improve erectile function among Chinese erectile dysfunction patients who smoke.

Design: An RCT was conducted. Data were collected in 2004–2007 and analyzed in 2008.

Setting/participants: The sample included 719 Chinese adult erectile dysfunction patients who smoked at least 1 cigarette per day, intended to quit smoking within the next 7 days, and would use NRT.

Interventions: Group A1 received 15-minute smoking-cessation and 3-minute NRT adherence counseling at baseline, 1 week, and 4 weeks with free NRT for 2 weeks. Group A2 received the same treatment, except for the adherence counseling. Group B received 10 minutes of quitting advice. All subjects received a self-help quitting booklet at first contact.

Main outcome measures: Self-reported 7-day tobacco abstinence at 6 months, 4-week NRT adherence at 1 month, and improvement in erectile dysfunction condition at 6 months.

Results: The intervention groups (A1+A2) achieved higher rates of abstinence, both self-reported (23% vs 12.8%, RR=1.79, 95% CI=1.22, 2.62) and biochemically validated (11.4% vs 5.5%, RR=2.07, 95% CI=1.13, 3.77), than the control group. The NRT adherence rate did not differ between Groups A1 and A2 (13.7% vs 12.7%, RR=1.08, 95% CI=0.69, 1.69). An improvement in erectile dysfunction status from baseline to 6 months was associated with self-reported quitting at 6 months but not with intervention status.

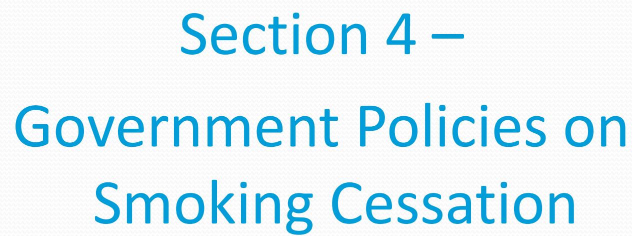
Conclusions: Although quitting smoking was associated with improvement in erectile dysfunction, this study found significant outcome differences among the means used to achieve smoking cessation.

Trial registration: ISRCTN13070778.
(Am J Prev Med 2010;39(3):251–258) © 2010 American Journal of Preventive Medicine

Acknowledgements

- he Research Grants Council of Hong Kong (RGC ref. HKU7428/03M)
- Kwong Wah Hospital
- Family Planning Association of Hong Kong
- The Hong Kong Council on Smoking and Health (COSH)
- Study participants

34



By Ms Lisa Lau

36