

U-21 Health Sciences Annual Meeting

Tele-Assessment Project

Voice Risk Calculator: Reducing the Risk of Developing Voice Problems in Teachers

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Prevalence

- At least 50% of teachers reported having voice problems
 - (e.g., Roy, Merrill, Thibeault, Gray & Smith, 2004)
- In Hong Kong, a teachers' occupational health survey was carried out in 2005
 - 1710 primary and secondary teachers responded
 - **72.8%** of teachers responded that in the past 30 days they had some type of work related voice problems
 - The voice problem was reported to last for an average of **13.4 days**
 - (Chung & Chan, 2007)



Impact of voice problems

- Sick leave
- Reduce teaching activity
- Financial loss in the education system
- Cost on the health system

Total cost estimate **HK\$75 (US\$10)** million annually
(including salary loss, replacement teachers salary,
medical treatment)



Prevention of voice problems

- Universal agreement that preventive measures should be taken
 - (U.S.A., U.K., Netherlands, France, Finland, Iceland, Hong Kong)
- In U.K., National Health Service has launched a “Speaking up for teachers’ voice care” project
- In Spain, some universities offer voice care programmes for teachers



Prevention of voice problems

- In Singapore, offered in Postgraduate Diploma in Education
- In U.S., no compulsory voice training programs for student teachers
 - research studies are being carried out to investigate the effectiveness of voice workshops on preventing voice problems in teachers



Prevention – Hong Kong

- At University of Hong Kong
 - Optional module in voice training for teacher trainees
- Our previous study showed 89% of teachers expressed interested in attending voice workshops



Project Objectives

- Develop the **internet version** of **Voice Risk Calculator** to identify teachers who are at risk of voice problems
- Provide internet resource support for preventing and reducing voice problems in teachers



Risk Assessment Framework for Hyperfunctional Voice Disorders

Conceptual framework



Science (April, 2002) –

Most common diseases are ‘complex and multifactorial’



Why risk assessments?

1. Understanding of development of voice disorders
 - Nature,
 - Course of development
 - Causal determinants
2. Provide valuable information for *diagnosis*
 - Theoretical framework
 - Accurate prediction of disease onset and progress

Why risk assessments?



3. Provide directions for *prevention* and *intervention*

- Individual patient level
 - Individualized treatment program targeting specific risks
 - Accurate monitoring of disease progress with on-going risks assessment
- Population level
 - Accuracy prediction for population groups
 - Public health promotion strategies
 - Facilitate awareness and early identification

Beck, 1994; Corbet & Jin, 2004;
Rutger, Person, Lloyd, Mancl, Martin & Page, 2003; Tonetti, 1998)



Content of questionnaire

Vocal Loading Indicator

Duration of voice use, voice care knowledge, voice habits, occupational demands, reaction to early symptoms, voice or singing training

Physiological Indicator

Gender, medical conditions, history in voice disorders, caffeine/tobacco/alcohol intake

Psycho-emotional Indicator

- **Cross-Cultural Personality Assessment Inventory (CPAI-2; Cheung et al., 2001).**
- **Perceived Stress Scale (PSS – 14, Chu, 2005)**

Phase 1

Teacher's Voice Risk Calculator



- Upon completion, teachers will receive preliminary information on whether they are at risk of developing voice problems
- Expected around **12,400 teachers** will fill in the questionnaire
 - Kindergartens, primary, secondary and special schools
- The data will be analyzed to determine the final questionnaire items to be included in the Teacher's Voice Risk calculator



Phase 1

Teacher's Voice Risk Calculator

- Invite teachers to fill in a set of questionnaires online
 - Prototype Voice Risk Calculator
 - Voice Activity and Participation Profile
 - Quality of life measurement
 - Voice Symptom Scale
 - Identify voice symptoms and severity
 - Cross-cultural personality assessment inventory
 - Personality traits, anxiety and depression levels

Phase 2

Voice Training Workshops



- Voice training workshops
 - Voice care and voice exercises
- 2 groups of teachers (total 440 teachers):
 - Control and Experimental Group
- All teachers will be evaluated individually by a speech therapist 3 times throughout the year
- Experimental Group will receive training during the test period
- Control Group will receive training after the test period



Sustainability of the Project

- Internet Voice Resource Centre
 - Maintained by the Centre for Communication Disorders, HKU
 - Teacher's Voice Risk Calculator and guidelines
- In the long run – prevalence of voice problems in teachers should be reduced
 - Early identification
 - Provision of voice training
 - School environment improvement