The relationships of health literacy, health behavior and health status regarding infectious respiratory diseases: a latent variable model

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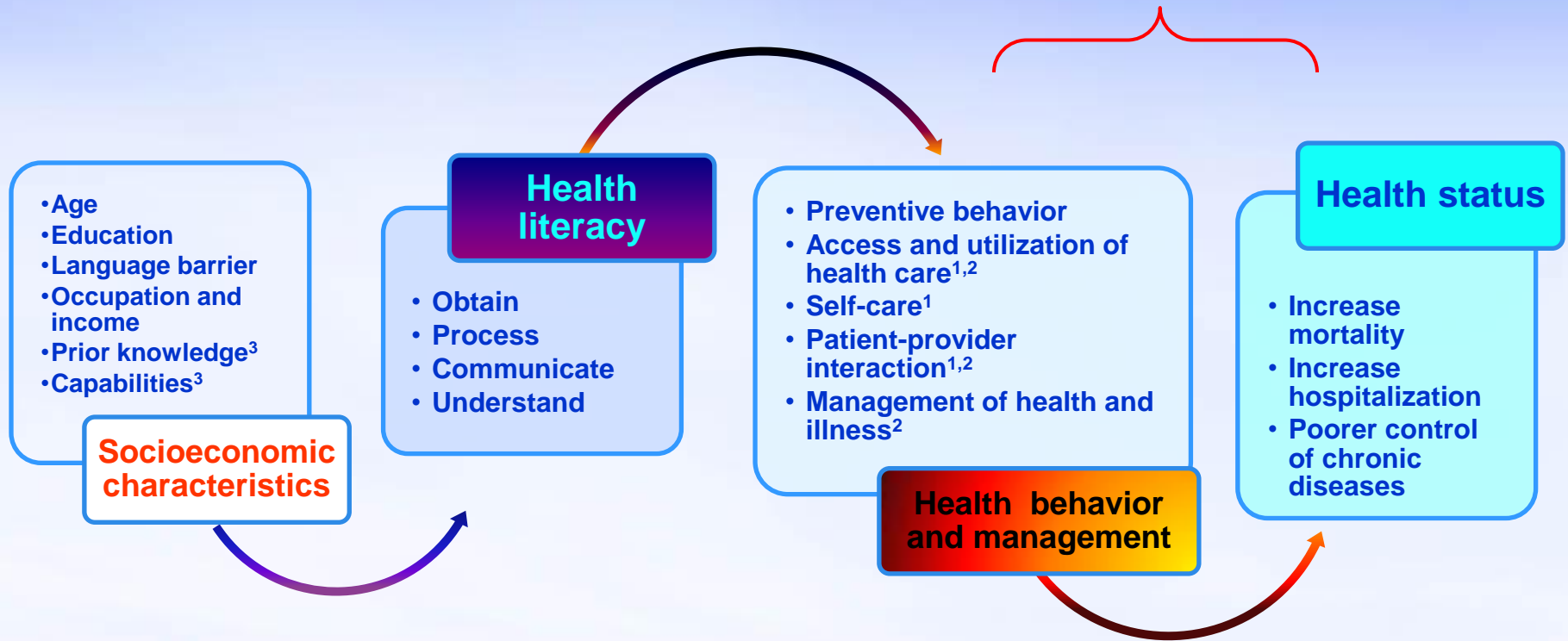**University of North Carolina at Chapel Hill**

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Background

What is health literacy?

Health literacy is the degree to which individuals can obtain, process, understand and communicate about health related information needed to make informed health decisions.

Health outcomes

Health literacy

- Age
- Education
- Language barrier
- Occupation and income
- Prior knowledge[3]
- Capabilities[3]

Socioeconomic characteristics

- Obtain
- Process
- Communicate
- Understand

- Preventive behavior
- Access and utilization of health care[1,2]
- Self-care[1]
- Patient-provider interaction[1,2]
- Management of health and illness[2]

Health behavior and management

Health status

- Increase mortality
- Increase hospitalization
- Poorer control of chronic diseases

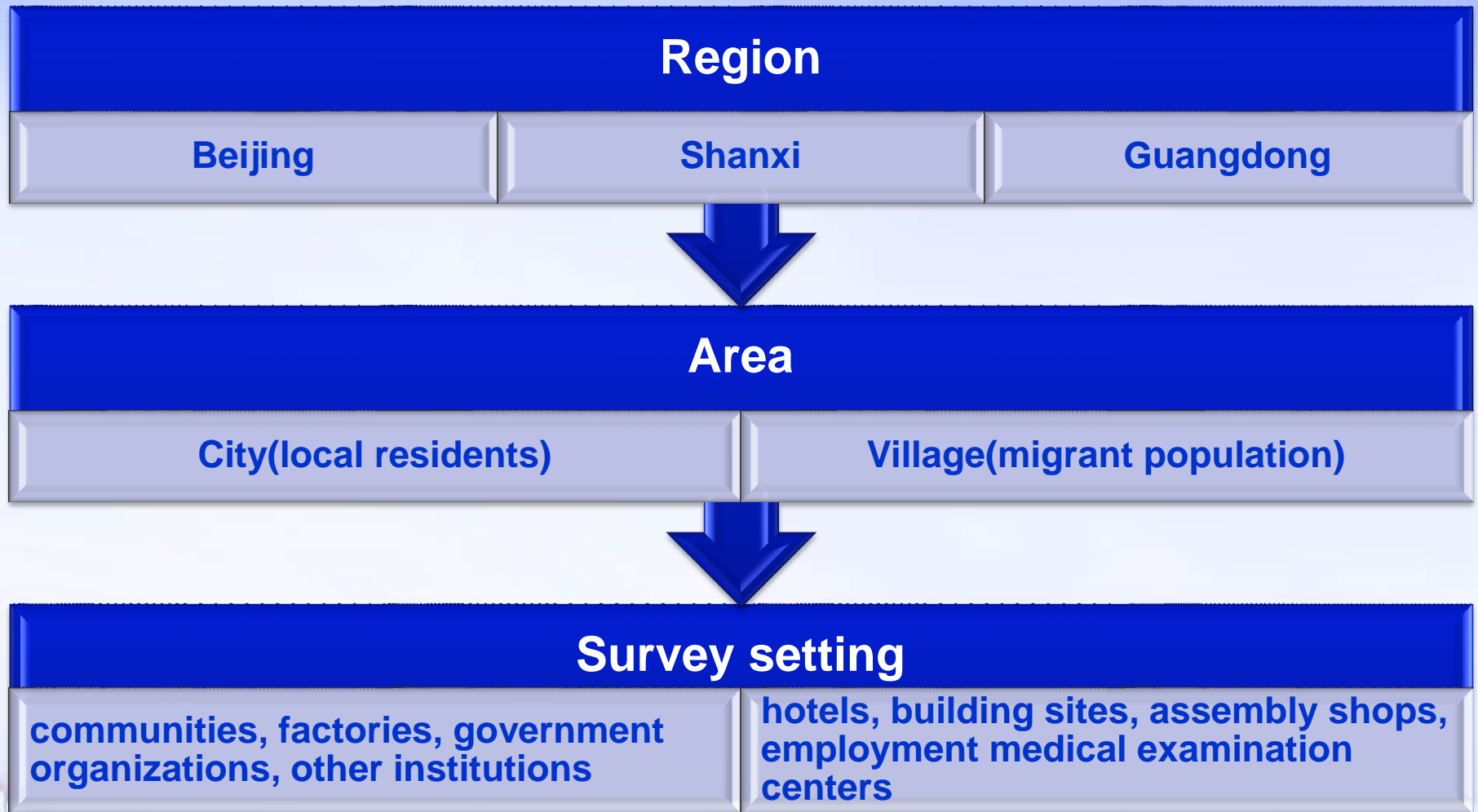**1,Paasche-Orlow 2007; 2, von Wagner 2009; 3, McCormack 2012**

Methods

❖ **Sample**

❖ **Measurement**

❖ **Data analysis**
   - Latent variable analysis was used by Lisrel 8.70.

Multi-stage stratified cluster sampling (3222 residents)

Region

Beijing	Shanxi	Guangdong

Area

City(local residents)	Village(migrant population)

Survey setting

communities, factories, government organizations, other institutions	hotels, building sites, assembly shops, employment medical examination centers

Questionnaire

Socio-demographic characteristics	• Age, gender, ethnicity, marital status • Education, occupation, income
Prior knowledge	• Different types of infectious respiratory diseases • Prevention methods
Behaviors and actions	• Preventive behaviors (washing hands, wearing a face mask, sneezing, room ventilation) • Treatments for infectious respiratory diseases
Health status	• Frequency of sickness and seeing a doctor due to upper respiratory infection • Degree of severity for each sickness and the duration

Skill-based health literacy measurement

❖ **16 stimuli materials(including 3 pieces of audio or video to test communication literacy)**

❖ **WHO, China CDC, Chinese Center of Health Education**

❖ **Involving the distribution of epidemics, immunization programs, early symptoms, means of disease prevention and individual's preventative behavior, use of medications and thermometers, treatment plans, etc**

Newspaper for print-prose literacy

健康文摘报

中华人民共和国卫生部主管　健康报社主办

2010年10月8日　第81期　总第1242期　周二、五出版　邮发代号:1-159

治疗疼痛 自行用药不可靠

亚洲首个针对慢性疼痛患者自我用药习惯的调查显示,大约60%的慢性疼痛患者在自行使用止痛药。大多数受访者表示,疼痛干扰了他们的日常生活,并导致他们无法集中精力完成某项工作,甚至不能享受日常爱好与其他休闲活动。在从未寻求医生协助的接受调查者中,超过30%的受访者选择不看医生的原因,是他们相信可以自行处理疼痛。只有5%的受访者使用处方药。
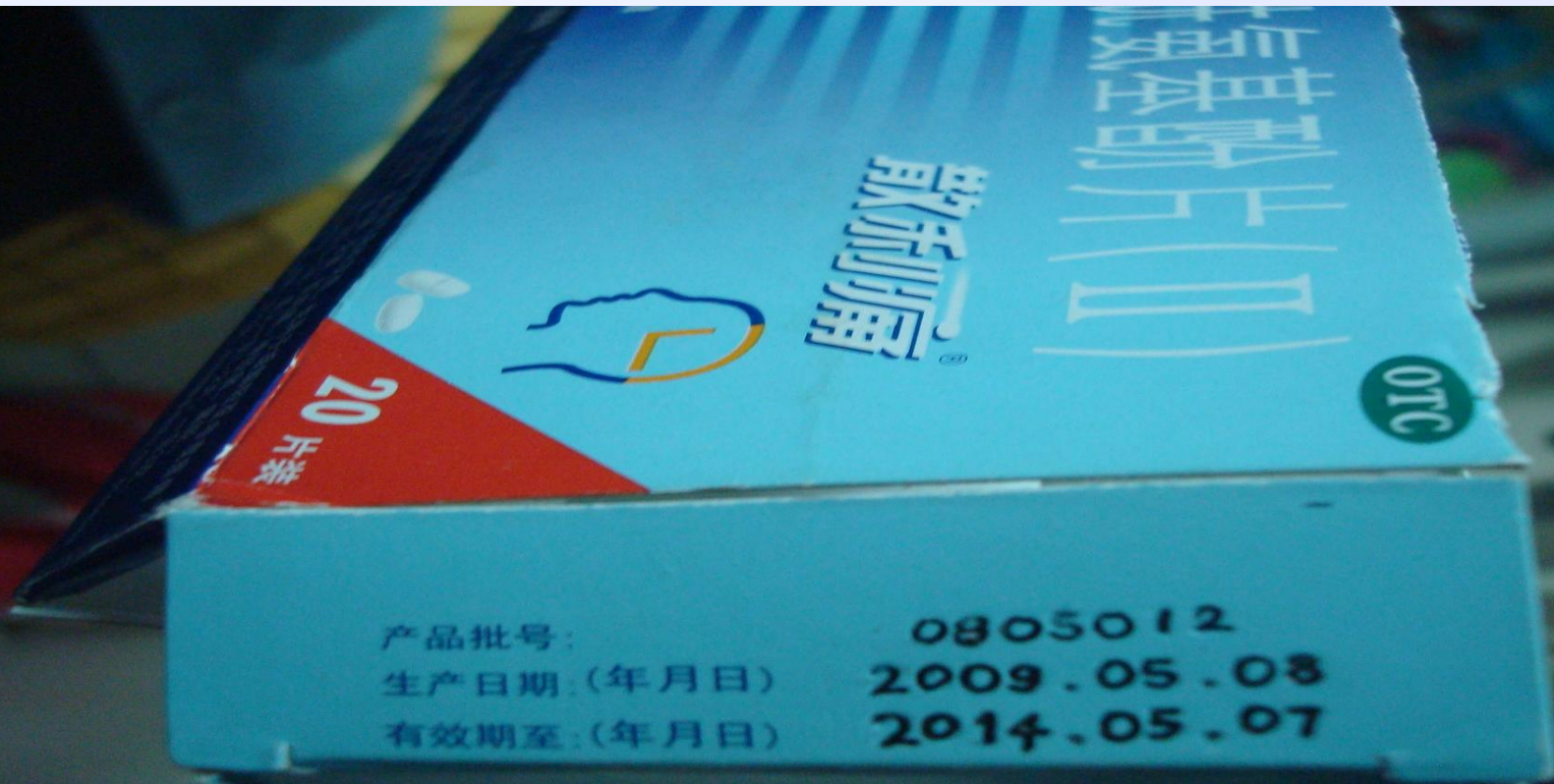
常吃抗生素需提防"超级细菌"

专家指出,长期滥用抗生素的人,体内细菌耐药性强,容易感染"超级细菌"。专家提醒,防范"超级细菌"应该从现在做起,防止滥用抗生素。"超级细菌"主要是在医院内感染。因此,到医院看病与探视病人,都要有防范"超级细菌"的意识。由于"超级细菌"可以在周围环境中存活,所以到医院手尽量不要乱摸,不要接触口、眼、鼻等,要勤洗手。探视住院病人,要尽量减少在病房停留的时间。住院病人要减少去别的病房"串门"。

《京华时报》2010.09.21杨凤丽 文

Print-document literacy

Picture of pill case for question about expiry date

Table for print-quantitative literacy

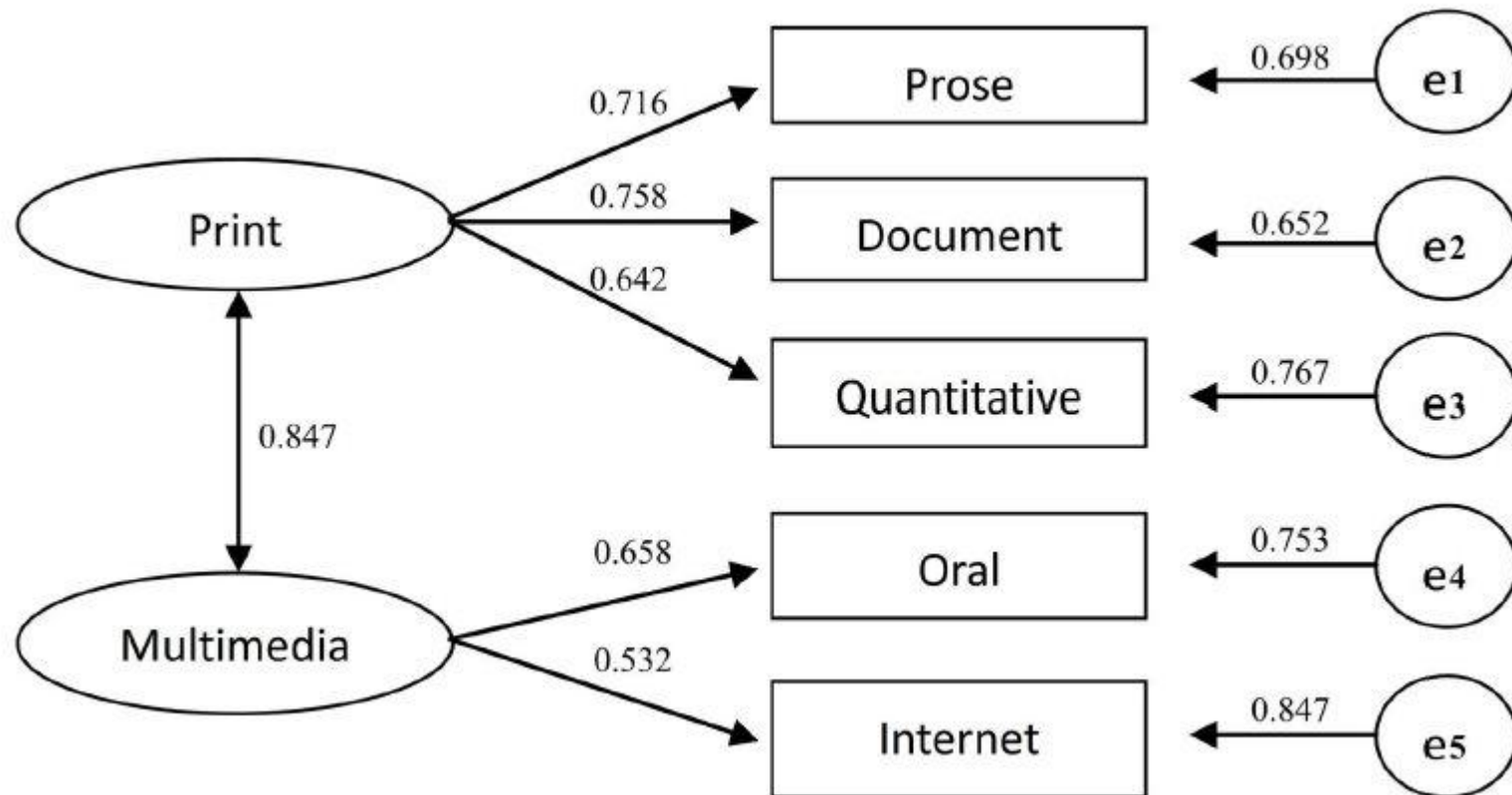| Hospital level	Starting pay line	Reimbursement ratio
Designated hospitals at township/village-level (first level)	**80 RMB**	**80%**
Local designated hospitals at district/county-level (second level)	**200 RMB**	**60%**
Nonlocal designated hospitals at district/county-level (second level)	**500 RMB**	**60%**
Designated hospitals at municipality-level (third level)	**1000 RMB**	**50%**

Reliability of the instrument

Variables	Items	Cronbach α
Prior knowledge	12	0.662
Health behavior	23	0.688
Health status	13	0.623
Health literacy	30	0.863
Print-prose	5	0.568
Print-document	8	0.664
Print-quantitative	6	0.531
Oral	6	0.624
Internet	5	0.964

Sun et al. BMC Public Health, 2013,13:261

Construct Validity of Health literary Measurement

Sun et al. PLOS ONE, 2013,8(5):e64153

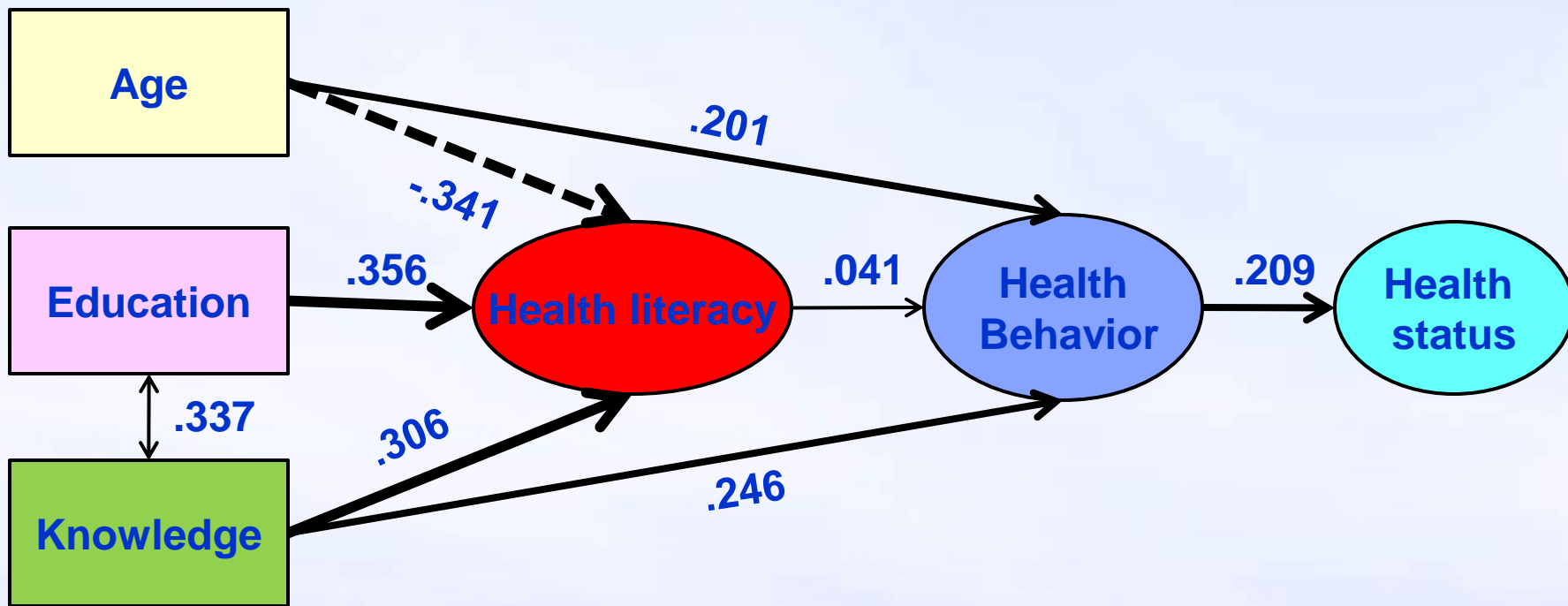**Original results of latent variable model**
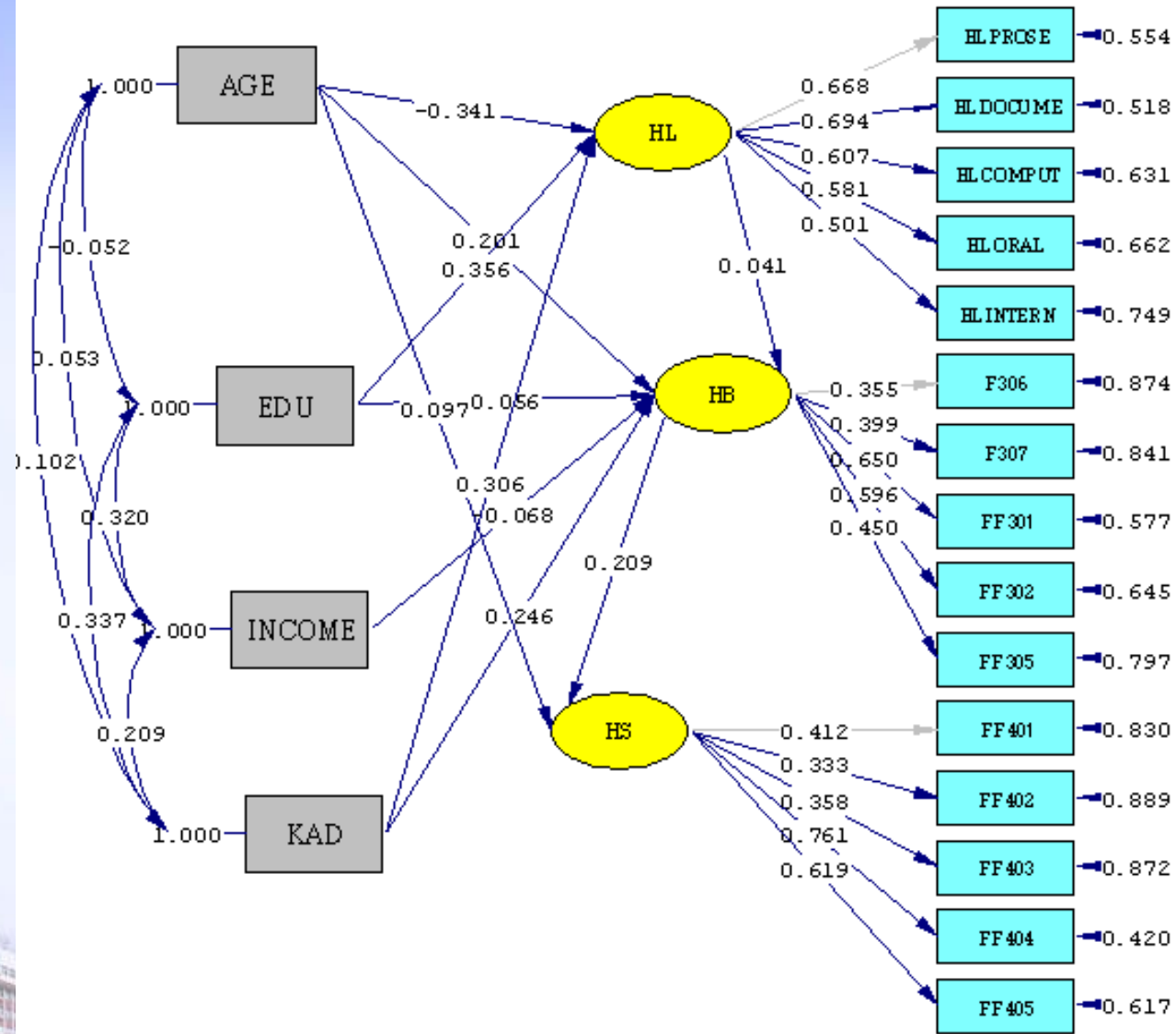
RMSEA=0.076   GFI = 0.918

Health literacy model

Conclusion

❖ **This model explains the determinants of health literacy and the associations between health literacy and health behaviors well.**

  ✍ **Education** and **prior knowledge** has positive, strong and direct effect on health literacy.

  ✍ **Age** has **negative**, strong and direct effect on health literacy.

  ✍ Health behavior is influenced by age and prior knowledge positively but weakly by health literacy.

  ✍ Health behavior is an important factor to health status.

Implication and limitation

❖ **This model is at the individual level.**

    ↝ **To extend the scope of health literacy beyond the individual.**

❖ **Limited by the project background (infectious respiratory diseases)**

    ↝ **To test the feasibility of the model in regards to other diseases and aspects of health.**

Acknowledgement

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❖ **CDC China Office and RTI international for their support and valuable comments.**

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❖ **Thank you for your attention.**