

Demographic Characteristics and Personality Variables as Predictors of Health Information Literacy in Young Adults

Veronika Kuhberg-Lasson and Anne-Kathrin Mayer
ZPID - Leibniz Institute for Psychology Information, Trier

European Conference on Information Literacy
Saint-Malo, September 2017

www.zpid.de

Why is HIL important in emerging adulthood?

Health information skills and information behavior are linked to

- positive health behavior (Yu & Wu, 2005)
- informed health decisions (Jayanti & Burns, 1998)
- treatment compliance (Hsu, Johnson, & Brooks, 2003)

Developmental tasks of late adolescence / emerging adulthood:

- developing independence from advice and support of parents
- taking over responsibility for health of others
- dealing with information overload

„Information age generation“ has problems in dealing with health-related information (Ivanitskaya, Boyle, & Casey, 2006; Schaeffer, Vogt, Berens, & Hurrelmann, 2016).

Factors influencing H(I)L and health information seeking

Demographic characteristics, e.g.,

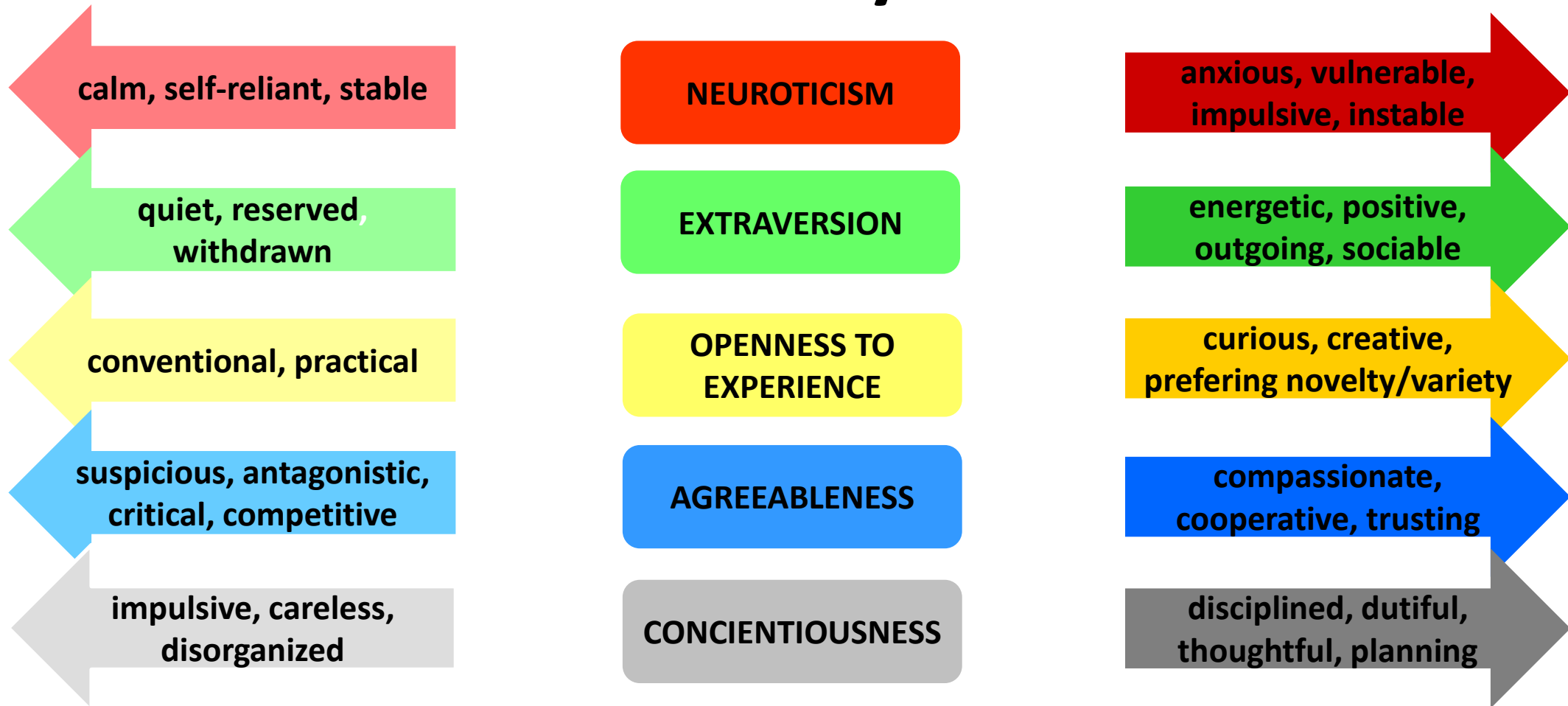
- **Education** (e.g., Eriksson-Backa, 2014; Wang et al., 2013)
- **Gender** (e.g., Tong, Raynor, & Aslani, 2014; Ek & Heinström, 2011; Li, Theng, & Foo, 2015)
- **Vocation** (Hirvonen, Pyky, Korperlainen, & Houtari, 2015; Sommer & Kuhn, 2007)
- *(Other factors such as age, socioeconomic background, migration history or ethnicity)*

Hypothesis:

Higher HIL is associated with

- Higher level of education
- Working in health-related (compared to non-health-related) vocations

Personality Traits



Selected findings on information seeking

- **High openness and conscientiousness:**
High-quality searches and broad approaches to searching.
- **High neuroticism:**
Superficial searches, shorter queries, problems in assessing relevance of information.
- **High extraversion:**
Broad and extensive but unsystematic searches. Difficulties with tasks requiring information competence.
(Heinström, 2003 & 2005; Schmidt & Wolff, 2016):

Hypothesis:

Higher HIL is found in people with

- Higher degree of conscientiousness and openness to experience
- Lower level of neuroticism and extraversion

Empirical testing

Sample characteristics:

$N = 352$ adolescents and young adults (60 % female) aged 16 to 34 years ($M = 20.80$, $SD = 3.15$) from 3 vocational schools for:

- (1) Economic and administrative occupations
- (2) Technical occupations
- (3) Health-related occupations

Data collection:

- Demographic characteristics (assessed by questionnaire): Age & sex (control variables), level of education, vocation
- Personality traits (assessed by 30-Item-Version of Neo Five Factor Inventory NEO-FFI-30, Körner et al., 2008).
- Health information literacy knowledge (measured by HILK, Mayer & Holzhäuser, 2015).

Means (*M*), standard deviations (*SD*), internal consistencies (Cronbach's α , in italics on the diagonal), and intercorrelations of the measures used

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1 HILK	0.42	0.13	.72					
2 Neuroticism	2.77	0.91	-.07	.85				
3 Extraversion	3.55	0.62	-.14*	-.25**	.67			
4 Conscientiousness	4.07	0.58	.03	-.32**	.32**	.73		
5 Agreeableness	3.79	0.69	.03	-.24*	.07	.22**	.70	
6 Openness	3.00	0.89	.15**	.12*	-.08	-.20**	-.05	.76

* $p < .05$, ** $p < .01$

Note. $N = 317$. Range of values for HILK: 0-1, for all other scales: 1-5

Prediction of HILK

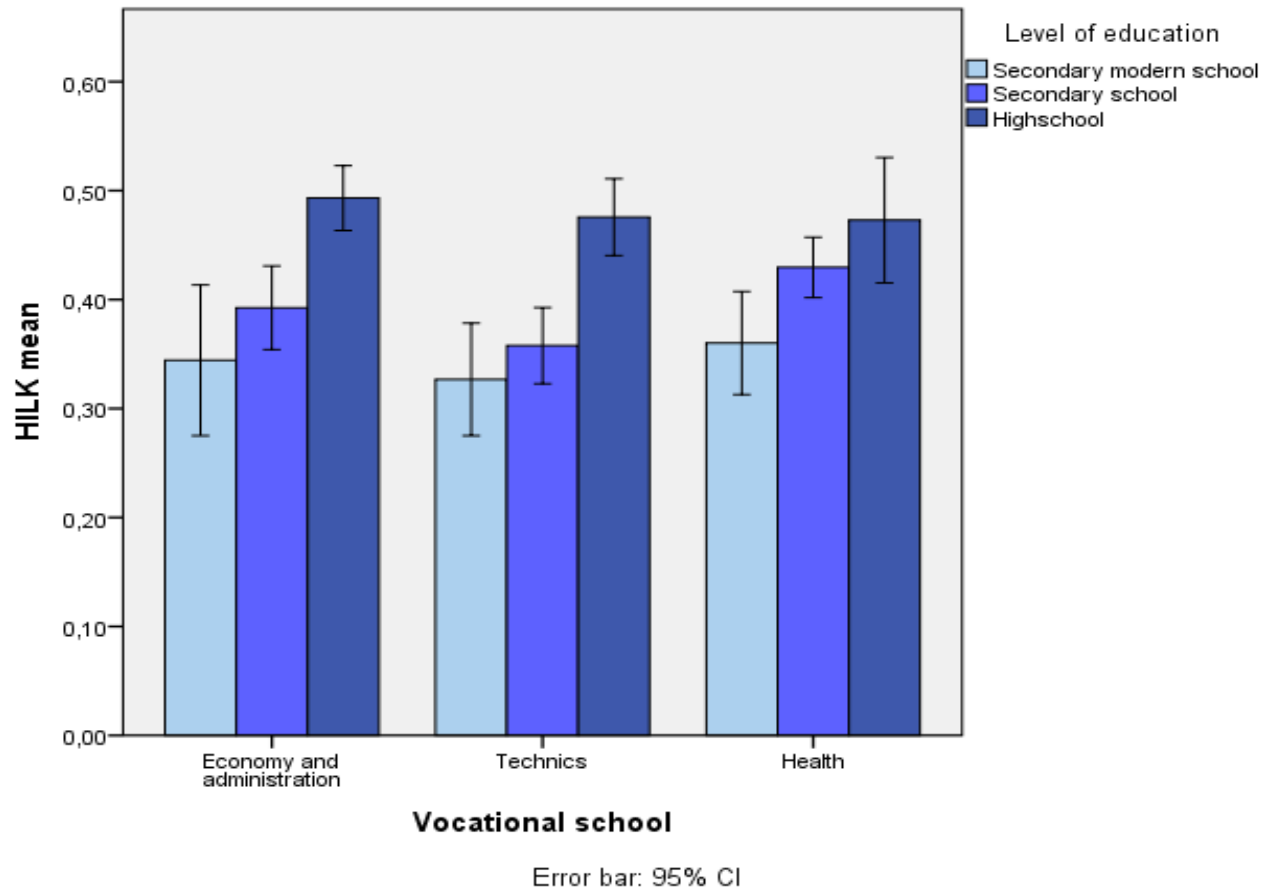
	<i>b</i>	SE (<i>b</i>)	β	ΔR^2
Block III				.022, $p = .130$
Constant	0.53	0.10		
Gender (1 = male)	-0.03	0.02	-.10	
Age	0.00	0.00	.04	
Secondary modern school (dummy var.)	-0.12	0.02	-.35**	
Secondary school (dummy var.)	-0.08	0.02	-.33**	
Economic and administrative vocations (dummy var.)	-0.02	0.02	-.07	
Technical vocations (dummy var.)	-0.03	0.02	-.11	
Neuroticism	-0.01	0.01	-.10	
Extraversion	-0.03	0.01	-.12*	
Conscientiousness	0.01	0.01	.04	
Agreeableness	-.00	0.01	-.02	
Openness	0.01	0.01	.08	
R ² total				.230, $p < .001$

* $p < .05$, ** $p < .01$. Block I: $\Delta R^2 = .088$, $p < .001$; Block II: $\Delta R^2 = .120$, $p < .001$

Note. *b* = unstandardized regression weight, SE(*b*) = standard error of *b*, β = standardized regression weight; ΔR^2 = increase in variance explained by predictors. Reference group for education: high school; reference group for vocations: health vocations.

Openness x education: $F(2,316) = 5.80$; $p < .01$) for highest education.

HILK differences subject to education and vocation



Summary

1. Education is a strong predictor of HIL.

2. Extraversion shows negative associations with HILK

- Use of variety of sources rather than deep searches (Heinström, 2003)
- Trust in social sources.
- Similarity to learning research: lower extraversion correlated to higher achievement (De Raad & Schouwenburg, 1996)

➔ Extraversion influences health information skills regardless of education.

3. Openness is a relevant factor in lower education.

Conclusions

Use of sources that are not trustworthy might be a consequence of high extraversion, not of a lack of education.

- Need of information services that focus on interactive exchange and a variety of sources.

People with lower education tend to be less open to experience.

- Need of low-threshold services implemented in familiar sources of information.

Education in younger students might miss encouraging skills needed for successful searching and evaluating health information.

- Need of curriculum elements that rise familiarity with information seeking and awareness of the importance of health information skills.

Thank you!

Contact:

Veronika Kuhberg-Lasson

ZPID – Leibniz Institute for Psychology Information

Universitaetsring 15, D-54296 Trier, Germany

kuhberg@zpid.de

References

- Costa, P. T., & McCrae, R. R. (1992). *Revised NEO personality inventory (NEO PI-R) and NEO five-factor inventory (NEO-FFI): Professional manual*. Psychological Assessment Resources, Inc.
- De Raad, B., & Schouwenburg, H. C. (1996). Personality in learning and education: A review. *European Journal of Personality, 10*(5), 303-336.
- Ek, S. & Heinström, J. (2011). Monitoring or avoiding health information—the relation to inner inclination and health status. *Health Information & Libraries Journal, 28*(3), 200-209.
- Eriksson-Backa, K. (2014). Health information literacy and demographic background in relation to health risks, diabetes and heart disease among older Finnish adults. *Informaatiotutkimus, 33*(3). Retrieved from:
<http://ojs.tsv.fi/index.php/inf/article/view/48046/13879>.
- Halder, S., Roy, A., & Chakraborty, P. K. (2010). The influence of personality traits on information seeking behaviour of students. *Malaysian Journal of Library & Information Science, 15*(1), 41-53.
- Heinström, J. (2003). Five personality dimensions and their influence on information behaviour. *Information Research, 9*(1), 9-1.
- Heinström, J. (2005). Fast surfing, broad scanning and deep diving: The influence of personality and study approach on students' information-seeking behavior. *Journal of Documentation, 61*(2), 228-247.

References

- Hirvonen, N., Pyky, R., Korpelainen, R., & Huotari, M. L. (2015). Health information literacy and stage of change in relation to physical activity information seeking and avoidance: A population-based study among young men. *Proceedings of the Association for Information Science and Technology*, 52(1), 1-11.
- Hsu, C. E., Johnson, L., & Brooks, A. N. (2003). Promoting health information literacy. Collaborative opportunities for teaching and academic librarian faculty. *Academic Exchange Quarterly*, 7(1).
- Ivanitskaya, L., Boyle, I. O., & Casey, A. M. (2006). Health information literacy and competencies of information age students: Results from the interactive online Research Readiness Self-Assessment (RRSA). *Journal of Medical Internet Research*, 8(2). DOI: 10.2196/jmir.8.2.e6.
- Jayanti, R. K., & Burns, A. C. (1998). The antecedents of preventive health care behavior: An empirical study. *Journal of the Academy of Marketing Science*, 26(1), 6-15.
- Li, J., Theng, Y. L., & Foo, S. (2015). Predictors of online health information seeking behavior: Changes between 2002 and 2012. *Health Informatics Journal*, 22(4), 804-814.
- Körner, A., Geyer, M., Roth, M., Drapeau, M., Schmutzer, G., Albani, C., Schuhmann, S., & Braehler, E. (2008). Persönlichkeitsdiagnostik mit dem NEO-Fünf-Faktoren-Inventar: Die 30-Item-Kurzversion (NEO-FFI-30). *Psychotherapie Psychosomatik Medizinische Psychologie*, 58(06), 238-245.

References

- Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of personality and social psychology*, 77(6), 1121.
- Mayer, A.-K., & Holzhäuser, J. (2015, November). The Health Information Literacy Knowledge Test (HILK): Construction and results of a pilot study. *3rd European Health Literacy Conference, Brussels*.
- Medical Library Association Task Force on Health Information (2003). *Health information literacy definitions*. Retrieved from <http://www.mlanet.org/resources/healthlit/define.html>.
- Schaeffer, D., Vogt, D., Berens, E. M., & Hurrelmann, K. (2016). *Gesundheitskompetenz der Bevölkerung in Deutschland: Ergebnisbericht*. Bielefeld: Universitaet Bielefeld. Retrieved from: <https://pub.uni-bielefeld.de/download/2908845/2908882>.
- Schmidt, T., & Wolff, C. (2016). Personality and information behavior in web search. *Proceedings of the Association for Information Science and Technology*, 53(1), 1-6.
- Sommer, D., Kuhn, D. (2007). Auszubildende und Gesundheit im Handwerk. ZAGG Zentrum für angewandte Gesundheitsförderung und Gesundheitswissenschaften. Retrieved from: https://www.ikkbb.de/fileadmin/user_upload/doc/Studien/Langfassung_IKK-Studie_Auszubildende_und_Gesundheit_im_Handwerk.pdf.
- Tong, V., Raynor, D. K. & Aslani, P. (2014). Gender differences in health and medicine information seeking behavior - A review. *Journal of the Malta College of Pharmacy Practice*, 20, 14-16.

References

- Tsai, T. I., Lee, S. Y. D. & Tsai, Y. W. (2013). Explaining selected health behaviors in a national sample of Taiwanese adults. *Health Promotion International*, dat085.
- Wang, M. P. Viswanath, K., Lam, T. H., Wang, X., & Chan, S. S. (2013). Social determinants of health information seeking among Chinese adults in Hong Kong. *PloS ONE*, 8(8), e73049.
- Yu, M. Y., & Wu, T. Y. (2005). Factors influencing mammography screening of Chinese American women. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 34(3), 386-394.

Health Information Literacy Knowledge Test HILK

Drawback of self-reports:

- Measurement of beliefs about competence rather than objective skills.
- Experience needed as basis of reliable self-assessment (Kruger & Dunning, 1999).
- Type of experiences influences competence evaluation (e.g., dealing with information about dieting vs. handling instructions for coping with ulcerative colitis).

HILK: Objective test assessing knowledge in

- planning, and
- conducting health information searches, and
- checking the results

Health Information Literacy Knowledge Test

HILK

Item example

A friend of yours recommends roseroot capsules of a certain brand to minimize inner tension. Which questions would you ask to gain well-founded information about the effectiveness of these capsules?

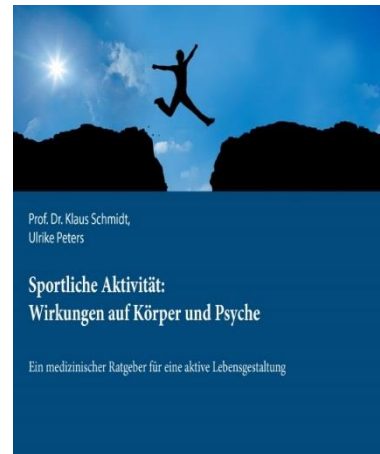
	applies	does not apply	dont`t know
Has the producer initiated research by independent institutes confirming the relaxing effect of the capsules?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there scientific proof for the relaxing effects of roseroot?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does your friend perceive an effect of the capsules on his well-being?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Health Information Literacy Knowledge Test HILK

Item example:

Which book likely contains well-balanced information (including possible advantages and disadvantages) about health-related effects of sports on well-being?

	applies	does not apply	don`t know
Book 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Book 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Book 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Summary and conclusions

4. Correlation between openness and HILK associated with education

- Openness for experience goes along with higher education, this in turn positively affects HILK.

5. No relationship of HILK to conscientiousness and neuroticism

- Both traits gain importance in situations when personal interest arises and may thus be stronger related to searching **behavior** than to objective skills:
 - thorough searches in a personal matter in high conscientiousness
 - information avoidance in high neuroticism
- Contrast to research on information seeking using self-reports (Heinström, 2005; Halder, Roy, & Charaborty, 2010), but in line with research using objective tasks (Schmidt & Wolff, 2016).