

# Explaining the intention to use HIV Pre-Exposure Prophylaxis among HIV-negative Men who have Sex with Men in Switzerland: Testing an extended explanatory model drawing on the Unified Theory of Acceptance and Use of Technology (UTAUT)

Daniel Gredig, Sibylle Nideröst, Benedikt Hassler, Franziska Uggowitzer, Patrick Weber  
University of Applied Sciences and Arts Northwestern Switzerland

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## BACKGROUND AND PURPOSE

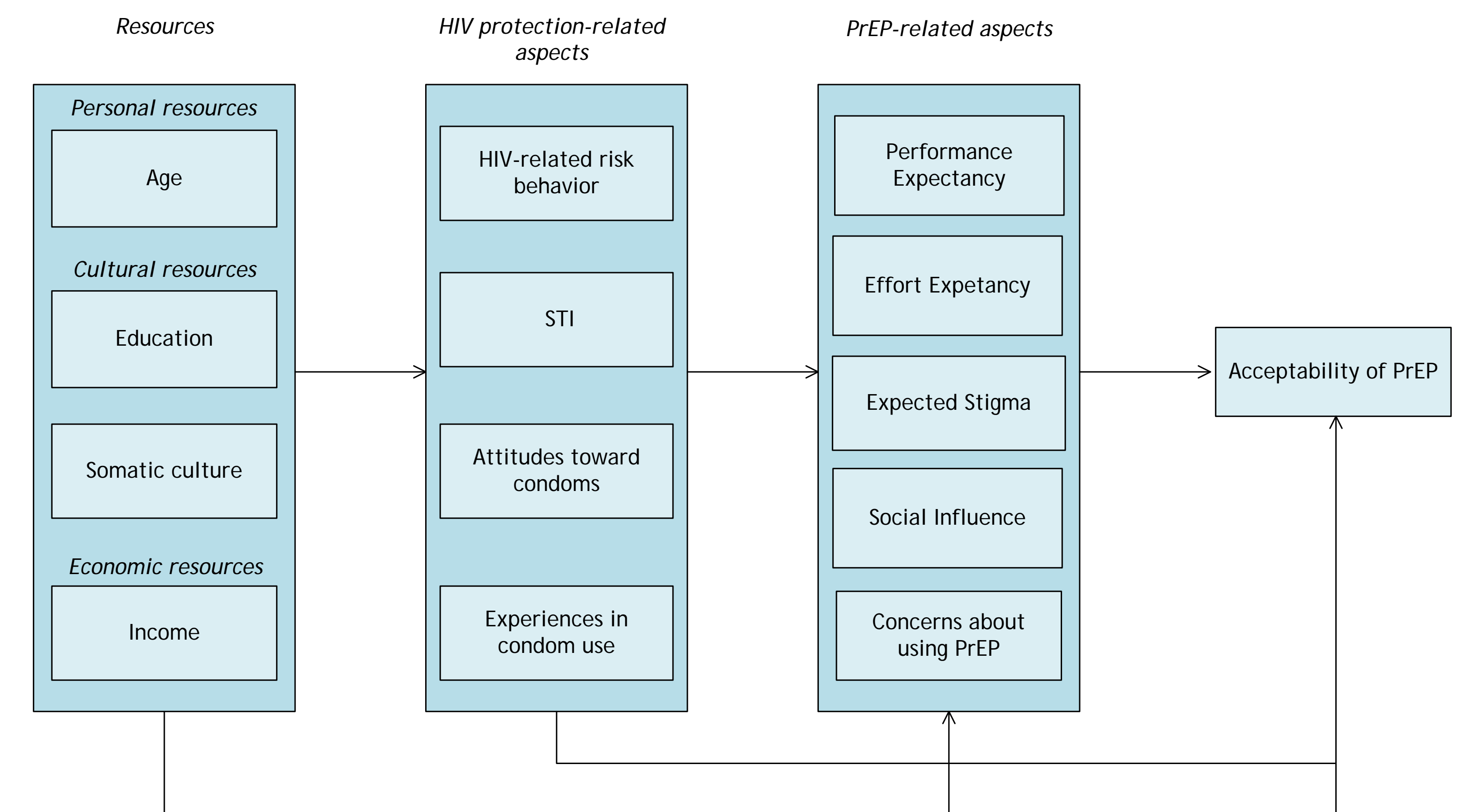
- Men who have sex with men (MSM) continue to be disproportionately affected by HIV/AIDS. In Switzerland, almost half of the HIV infections yearly diagnosed are in MSM [1].
- Although HIV Pre-Exposure Prophylaxis (PrEP) has not been approved in Switzerland, there is a discussion about its potential and adequacy as an additional prevention option especially for MSM.
- In the USA, where PrEP was approved in 2012, there is evidence that MSM are not keen to use it [2, 3, 4].
- Against this background, it is important to learn more about factors influencing the acceptability of PrEP. For an in-depth understanding comprehensive explanatory models will be essential.

**The aim of this study was to explain the intention to use PrEP among MSM living in Switzerland** by developing and testing a model based on the Unified Theory of Acceptance and Use of Technology (UTAUT) [5].

## THEORETICAL FRAMEWORK

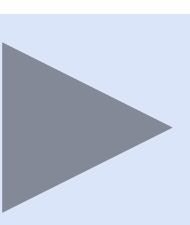
- The UTAUT considers performance expectancy, effort expectancy, social influence, and age as predictors of the intention to use a specific technology.
- Our extended and specified model additionally considered
  - further PrEP related aspects: concerns about PrEP, expected PrEP-related stigma [6]
  - HIV-protection related aspects: attitudes towards condoms, experiences in condom use, sexual risk behavior in the last 6 months, having been treated for a sexually transmitted infection in the last 6 months, [7, 8] and
  - resources (level of formal education, somatic culture, income) [9, 10].

Figure 1: Theoretical model based on the UTAUT



## METHODS

- The study design was cross-sectional. In 2015, we collected data using an anonymous self-administered standardized questionnaire, either online or paper-and-pencil.
- We gathered a convenience sample. Participants were addressed by flyers, advertisements in gay magazines, social media, specific dating web pages, and gay health clinics.
- We analyzed the data using descriptive and bivariate statistics. The model was tested by means of structural equation modeling using the generalized least square estimates method [11].





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## RESULTS I

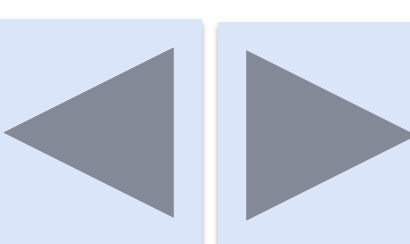
The sample included 556 HIV-negative MSM living in Switzerland.

Table 1: Sample description (n=556)

Variable		n	%
Sexual orientation (n=555)	gay	489	88.1
	bisexual	62	11.2
Relationship status (n=556, multiple answers possible)	single	243	43.7
	stable relationship with a man	283	50.9
	stable relationship with a woman	32	5.7
Educational level (n=555)	non-tertiary education	309	55.7
	tertiary education	246	44.3
Previous knowledge about PrEP (n=556)	yes	405	72.8
	no	151	27.2
Sex with casual partners in the past 6 months (n=556)	yes	464	83.5
	no	92	16.5
STI diagnosis/treatment in the past 6 months (n=556)	yes	91	16.4
	no	465	83.5

## RESULTS II

- The mean age of the respondents was 41 years ( $SD=11.9$ ). Almost half (44%) of the participants held a university degree. The median annual income was between CHF 91'001 and CHF 104'000.
- About 84% have had sex with a casual partner during the past 6 month. Fifty-three percent have always used a condom when having sex with these casual partners.
- The intention to use PrEP was moderate ( $M=3.7$ ,  $SD=2.1$ ). Thirty-nine percent of the participants would likely use PrEP if available. Fifty-one percent of the participants were unlikely to use PrEP in the future and only ten percent were still undecided about using PrEP.
- Analysis showed that the intention was predicted by performance expectancy ( $\beta=0.24$ ,  $p<.000$ ), effort expectancy ( $\beta=-0.18$ ,  $p<.000$ ), social influence ( $\beta=0.30$ ,  $p<.000$ ), concerns ( $\beta=-0.19$ ,  $p<.000$ ), as well as attitudes towards condoms ( $\beta=-0.08$ ,  $p<.018$ ), negative experiences in condom use ( $\beta=0.08$ ,  $p<.030$ ), and age ( $\beta=-0.08$   $p<.015$ ).
- The PrEP-related predictors proved to be determined by HIV-protection related aspects (sexual risk behavior, attitudes towards condoms, negative experiences with condom use, STI diagnosis/treatment, PrEP-related stigma), age, income, and education. Somatic culture determined the expected effort, negative experiences with condom use, and PrEP-related stigma. (CMIN/df=1.03; AGFI=0.968; SRMR=0.0269; adj.R<sup>2</sup>=0.51).  
(See the visualization of the findings in figure 1, next page)



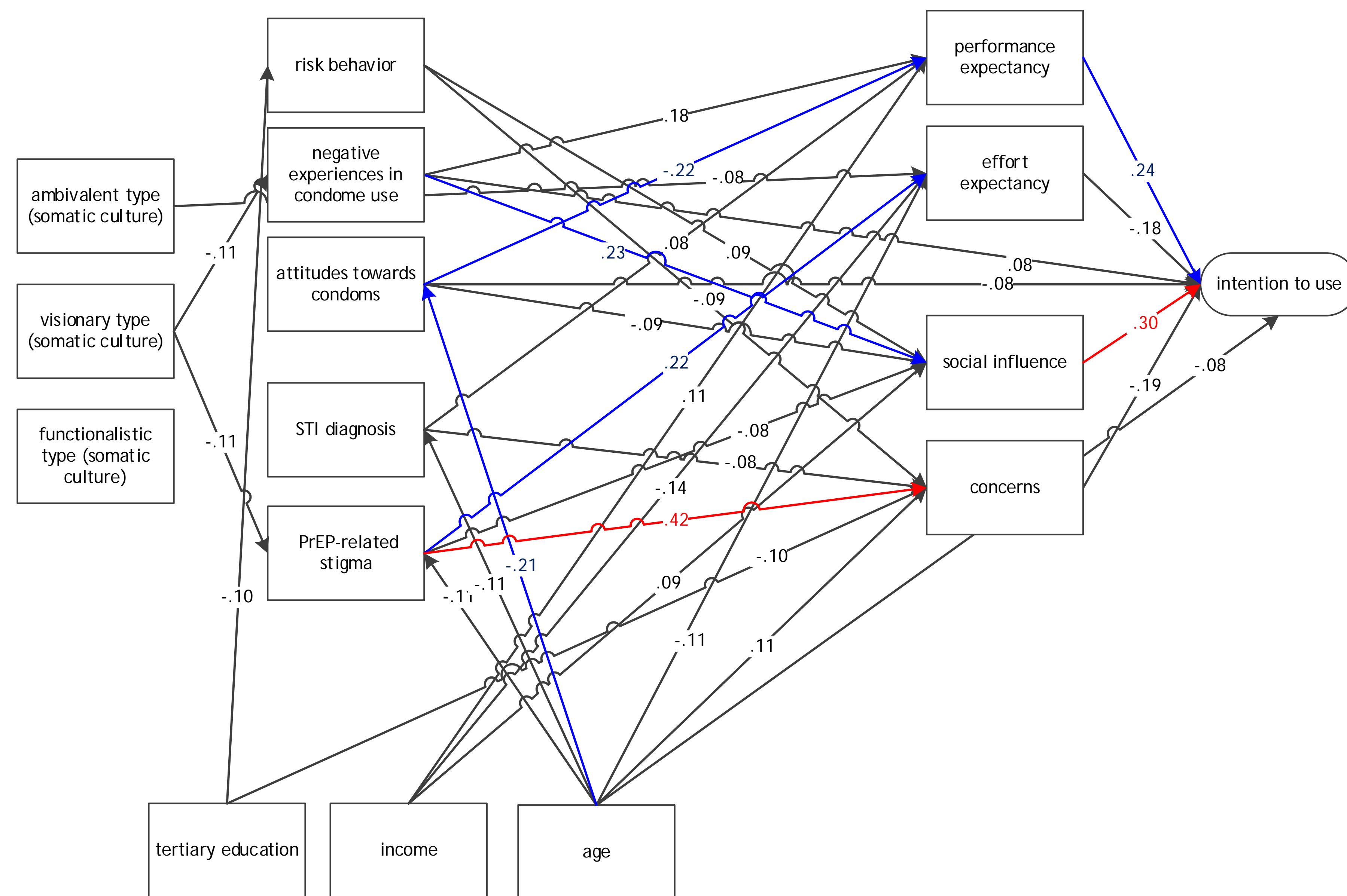


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## RESULTS III

Figure 1: Predictors of intention to use PrEP (direct and indirect effects)



Note: N=556; Method: Generalized least squares estimates;  $X^2=52.468$ ,  $p=0.417$ ; GFI=0.988, AGFI=0.968, SRMR=0.0269; adj.  $R^2=0.51$ .

Caption: black  $\beta=.08-.19$ , blue  $\beta=.20-.29$ , red  $\beta \geq .30$ . Correlations among the predictors are not illustrated.

## CONCLUSIONS

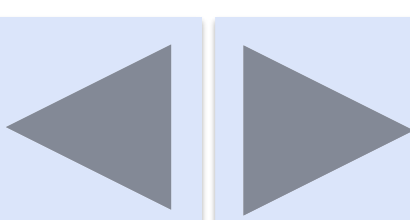
- The model proved to have a good fit and strong explanatory power.
- The findings suggest that the intention to use PrEP is not only determined by anticipations related to PrEP (as expected performance, efforts or concerns) and social influence. It also seems to be determined by HIV-protection related attitudes and behavioral patterns drawing from biographical experiences and therefore, in place before PrEP came into the participants' view. Further – mediated – predictors are personal, cultural and economic resources.
- From a HIV prevention perspective, the findings demonstrate the importance of acknowledging and considering the complexities around the decision making of these MSM.

### Limitations:

- The data are self-reported which may entail a bias regarding the reported levels of sexual risk behavior and condom use.
- The study is based on a convenience sample of MSM and the findings can only be generalized with considerable caution.
- The study surveyed a hypothetical question, since PrEP has yet not been approved in Switzerland.

### Outlook:

- For health promotion and prevention it will be critical to make PrEP available for MSM with high level of risk for HIV infection.
- However, it will also be key to abstain from campaigning for PrEP on a large scale as this could delegitimize condom use in the MSM community. So, raising the awareness of PrEP might go along with a communication supporting MSM who continue to opt for condom use and holding up the legitimacy of this prevention option.
- In this context, further research will also be needed to understand how MSM negotiate safety when PrEP users encounter condom users.





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## REFERENCES

- [1] Federal Office of Public Health. (2015). HIV- und STI-Fallzahlen 2014: Berichterstattung, Analysen und Trends. *Bulletin*(21), 341-374.
- [2] Kirby, T., & Thornber-Dunwell, M. Uptake of PrEP for HIV slow among MSM. *The Lancet*, 383(9915).
- [3] Delaney, K. P., Sanchez, T., Bowles, K., Oraka, E., DiNenno, E., & Patrick, S. (2016). Awareness and Use of PrEP Appear to Be Increasing Among Internet Samples of US MSM. Paper presented at the Conference on Retroviruses and Opportunistic Infections (CROI), Boston. retrieved from <http://www.croiconference.org/sessions/awareness-and-use-prep-appear-be-increasing-among-internet-samples-us-msm>.
- [4] Eaton, L. A., Driffin, D. D., Smith, H., Conway-Washington, C., White, D., & Cherry, C. (2014). Psycho-social factors related to willingness to use pre-exposure prophylaxis for HIV prevention among Black men who have sex with men attending a community event. *Sexual health*, 11(3), 244-251.
- [5] Venkatesh, V., Morris, M. G., Gordon, B. D., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425-478.
- [6] Ayala, G., Makofane, K., Santos, G.-M., Beck, J., Do, T. D., Hebert, P., . . . Arreola, S. (2013). Access to Basic HIV-Related Services and PrEP Acceptability among Men Who Have sex with Men Worldwide: Barriers, Facilitators, and Implications for Combination Prevention. *Journal of Sexually Transmitted Diseases*, 2013, 11.
- [7] Eisingerich, A. B., Wheelock, A., Gomez, G. B., Garnett, G. P., Dybul, M. R., & Piot, P. K. (2012). Attitudes and Acceptance of Oral and Parenteral HIV Preexposure Prophylaxis among Potential User Groups: A Multinational Study. *PLoS One*, 7(1).
- [8] Holt, M., Murphy, D. A., Callander, D., Ellard, J., Rosengarten, M., Kippax, S. C., & de Wit, J. B. F. (2012). Willingness to use HIV pre-exposure prophylaxis and the likelihood of decreased condom use are both associated with unprotected anal intercourse and the perceived likelihood of becoming HIV positive among Australian gay and bisexual men. *Sex Transm Infect*, 88(4), 258-263.
- [9] Gredig, D., Parpan, A., & Nideröst, S. (2002). Somatische Kultur und HIV-Schutzstrategien heterosexueller Männer. *Sozial- und Präventivmedizin*, 47(6), 366-377.
- [10] Gredig, D., Nideröst, S., & Parpan-Blaser, A. (2007). Explaining the Condom Use of Heterosexual Men in a High-Income Country: Adding Somatic Culture to the Theory of Planned Behaviour. *Journal of Public Health*, 15(2), 129-140.
- [11] Byrne, B. M. (2010). *Structural Equation Modeling with AMOS. Basic Concepts, Applications, and Programming*. (2 ed.). Ontario and Ottawa: Routledge. Taylor and Francis Group.

## CONTACT

**Daniel Gredig, Ph.D.**

School of Social Work  
University of Applied Sciences and Arts Northwestern Switzerland  
Riggenbachstrasse 16  
CH-4600 Olten  
Switzerland  
daniel.gredig@fhnw.ch



University of Applied Sciences and Arts Northwestern Switzerland  
School of Social Work

