

# Digital Prevention and Health Promotion among UMG patients: Need, Reach, Efficacy

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## BACKGROUND

- More than half of chronic diseases are preventable by change of health risk behaviors, foremost tobacco smoking, alcohol use, unhealthy diet and physical inactivity <sup>1-3</sup>.
- The particularly crucial occurrence of multiple risk behaviors (i.e. two or more) <sup>4-6</sup> is reported by half of the adult population <sup>7</sup>.
- To reduce the burden of disease, routine behavior change counseling in health care is recommended <sup>1-3</sup>, and digital counseling is expected to relief medical staff.

## AIMS

- To report on need, reach and efficacy of prevention and health promotion in hospital patients:
- 1) To report the proportions of patients with 1, 2 and more health risk behaviors.
  - 2) To report the proportions of patients who are successfully reached through systematic screening and behavior change counseling.
  - 3) To report on the 2-year efficacy of computer-based versus in-person and no counseling.

## METHODS



### Studies funded by Deutsche Krebshilfe

- Among UMG patients aged 18-64 years
- On 10-13 wards of 5 departments: internal medicine A & B, general surgery, trauma surgery, ear-nose-throat

### Systematic risk behavior screenings



n=6251 patients  
2010-2011



n=256 patients  
2020-2021

### Proactive risk behavior counseling



n=961 patients with at-risk alcohol use, 2010-2014, randomized controlled trial on **computer-based vs. in-person** counseling on reducing alcohol use vs. **controls**



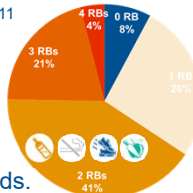
n=175 patients, 2022, pre-post intervention trial on **computer-based** counseling on 4 risk behaviors <sup>8</sup>

Driven by theory to enhance motivation to change risk behaviors <sup>9</sup>.

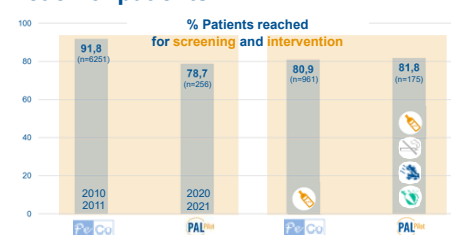
## RESULTS

### Need for prevention <sup>10-11</sup>

- $\geq 1$  risk behavior [RB]: 92.2% (95% CI 91.5-92.9)
- $\geq 2$  risk behaviors: 65.7% (95% CI 64.5-66.9)
- Comparable on all wards.

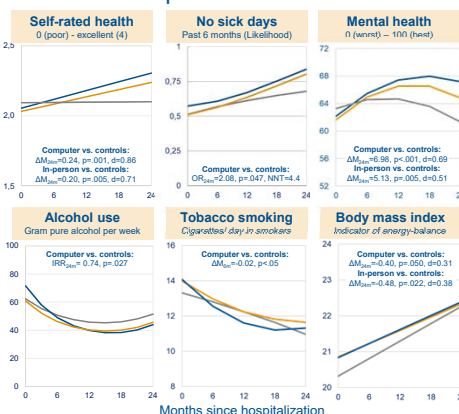


### Reach of patients <sup>12-13</sup>



### Efficacy of digital counseling <sup>14-18</sup>

- Medium-large behavior & health effects
- Similar to in-person



Notes: Adjusted latent growth models, n=961, ΔM=difference in mean change, OR=odds ratio, IRR=inocence rate ratio, d=Cohen's d, NNT=numbers needed to treat.

## DISCUSSION



- **More than 90% of UMG patients need primary prevention & health promotion; 66% for multiple health risk behaviors.**
- **With ~80% participation,** proactive, brief motivation-enhancing interventions reach hospital patients well.
- **Beneficial health & spill-over effects on other behaviors over two years** for digital and in-person delivery of single behavior interventions are found.
- Thus, at the UMG, high reach and long-term effective digital behavior change interventions with potential public health impact <sup>19</sup> have been developed.
- Further research & implementation into routine care are needed and promising.

## References

<sup>1</sup> American Heart Association 2019, <sup>2</sup> World Cancer Research Fund/ American Institute for Cancer Research 2018, <sup>3</sup> WHO Global status report NCDs 2014, <sup>4</sup> Khaw et al. PLOS Med 2008, <sup>5</sup> Petersen et al. Brit J Nutrition 2015, <sup>6</sup> Nguyen et al. Am J Clin Nutrition 2024, <sup>7</sup> John et al. Int J Environ Res Public Health 2018, <sup>8</sup> Freyer-Adam et al. BMJ Open 2022, <sup>9</sup> Prochaska & Velicer Am J Health Prom 1997, <sup>10</sup> Freyer-Adam et al. BMC Public Health 2019, <sup>11</sup> Spielmann et al. Int J Public Health 2022, <sup>12</sup> Freyer-Adam et al. Eur J Public Health 2016, <sup>13</sup> Spielmann et al. in prep. 2024, <sup>14</sup> Freyer-Adam Health Psychol 2018, <sup>15</sup> Freyer-Adam et al. Psych Med 2019, <sup>16</sup> Freyer-Adam Prev Med 2021, <sup>17</sup> Krolow-Wicovsky et al. Addict Sci Clin Pract 2023, <sup>18</sup> Tiede et al. submitted 2024, <sup>19</sup> Glasgow et al. Front Public Health 2019.