**Table S1 (supplementary file): Description of included studies and abstinence prevalence by control and experimental groups**

# A-Web-based smoking cessation interventions

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
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| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | **Adult smokers** | | | | | | | | |
| 1. | | Yes | Swartz 2006 [1]- USA | RCT | 97/ 351 (56%) | I: received a tailored video based internet site (www.smokefree.gov ) C: received nothing for 90 days and were then allowed access to the programme. Online recruitment | Phamarco therapy | 7-day PPA | 90d | 5% | 12.3% | A 1<br>B 1<br>C 1<br>D 2<br>E 1<br>F 3<br>→Q2 (9) (moderate) | The cessation rate at 90 days was significantly higher in the treatment group compared to the control group. | A smoking cessation programme, with at least short term efficacy, can be successfully delivered via the internet.<br>(1) self-reports assessment<br>(2) high attrition rate<br>(3) two findings are puzzling and inconsistent with other smoking cessation studies.<br>(4) longer follow up periods needed |
| 2. | | No | Mananes 2014 [2]- Spain Adults | RCT | 1,085/ 23,213 | I: 'UNED' web-based smoking cessation programme included education about the quit process, nicotine fading, self-monitoring, self-control, relapse prevention, coping skills, and lifestyle change. C: The non-interactive version provided identical content as the interactive version through a static PDF file | CBT | 7 day PPA | 90 days | | | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 3<br>→Q2 (moderate) Attrition rates: intervention 97%, control 94% | No difference between groups was found. | The abstinence rate was 1.74% but 97% respondents did not complete the outcome measurement. |
| 3. | | | Mavrot 2016 [3] - Switzerland | RCT | 436/ 1120 | I: a tailored and interactive Internet intervention, delivered during the 6-month including the Stop-Tabac website which involved a series of automatic, personalised feed-back reports based on the participant's answers to a tailoring questionnaire +automatic, individually-tailored, | TTM | 1-month PPA<br><br>3 months<br>6 months | | 17.5%<br><br>17% | 20.2%<br><br>15.5% | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 3<br>→Q2 (moderate) Attrition rates: 64% intervention, 60% control | There were no statistically significant differences between intervention and control groups in smoking cessation rates after three months and six months. | An individually tailored internet program did not significantly increase smoking quit rates, but it increased motivation to quit and self-efficacy. |

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| | | | | | | proactive email messages<br>C: The Stop-Tabac website was a non-tailored, non-interactive Internet intervention based on the TTM . | | | | | | | | |
| 4. | | No | Brown 2014 [4] –UK adults | RCT | 4,613 | I: 'StopAdvisor' was a tailored and interactive Internet intervention, including advice on setting a quit date, use of smoking cessation medicines, audio and video, and Facebook<br>C: a non-tailored and non-interactive Internet | | Russell Standard bioverified 6-month sustained abstinence | 7 months | 10% | 10% | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q1 (7) (strong) | The prevalence of smoking cessation was similar between two groups; relative risk [RR] 1.06, 95% CI 0.89-1.27; p=0.49). | StopAdvisor was more effective than an information-only website in smokers of low SES. |
| 5. | | | Burford 2013 [5]- Australia | RCT | 160 | I: a tailored and interactive Internet-based 3-dimensional age progression software package created a stream of aged images of faces from a standard digital photograph; the resulting aged image was adjusted to compare how the participant aged as a smoker vs. as a non-smoker. + standard 2-minute quit advice from the pharmacist<br>C: brief face-to-face control arm (2-minute smoking cessation advice) | TTM | bioverified (48 hours of follow-up survey) PPA, quit attempts, transtheoretical stages of change, nico-tine dependence, cost effectiveness | 6 months | 1.3% | 6.3% | A 3<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q3 (9) (weak) | Cost of implementing the intervention was AUD 463, or the equivalent of AUD 5.79 per participant. The incremental cost-effectiveness ratio was AUD 46 per additional quitter. | Facial physical appearance by using a computer-generated simulation may be both effective and cost-effective at persuading young adult smokers to quit. Participants were recruited and assigned by the researcher to the different arms of the study on alternate weeks (high risk of selection bias) |
| 6. | | | Calhoun 2016 [6] – USA With NRT | RCT | 413 (76%) | I: The Internet-based intervention was tailored and interactive ( 'QuitNet®'). The website provides access to cessation including Online smoking cessation counsellors, and interactive features (i.e. forums, buddies, chat rooms), and email | | bioverified 7-day PPA (*) | 3 months 12 months | 13% | 16% | A 2<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q1 (7) (strong) | There was no difference between quit rate at 3 months and 12 months. | Study staff members were blinded to the randomisation block size.<br><br>Electronic medical which was used to identify smokers and proactively offering smoking cessation services can significantly reduce smoking in veterans. Novel interventions that |

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| | | | | | | support and NRT<br>C: non-internet-based active control arm (telephone counselling based on the 'QuitSmart™ Pro-gram', with smoking cessation medication ) | | | | | | | | increase the reach of intensive treatment are needed to maximize quit rates in this population |
| 7. | | | Cobb 2016 [7][8]– USA Facebook | RCT | 9,042 | I: The Facebook intervention was a tailored and interactive Internet intervention and a countdown to set date or an estimate of savings since that date.<br>C: 'Facebook intervention with alerting' was a tailored Internet intervention with online alerts to remind users of the application. | "5As" model (Ask, Advise, Assess, Assist, and Arrange). | 7-day PPA | 30 days | | | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2 (unclear)<br>→Q1 (7) (strong) | The highest level of diffusion (R = 0.087) occurred when we combined active contagion strategies with strategies to increase duration of use (incidence rate ratio = 9.99; 95% confidence interval = 5.58, 17.91; P < .001). | Internet interventions can be developed a priori to spread through social networks. |
| 8. | | No | Dezee 2013 [9] – USA From a military medical centre | RCT | 217 (43%) | I: The 'GetQuit' web-based counselling programme (the Internet counselling intervention was both tailored and interactive) included daily email and invitation to complete an activity such as: motivations to quit smoking, quit date advice, smoking triggers and alternatives, support systems, coping strategies, avoiding weight gain, and medication education<br>C: in-person counselling of 1½-hour group classes conducted once weekly for four weeks. | | 7-day PPA (*) , nicotine dependence, depression, and anxiety | 12 weeks | 18% | 21% | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 3<br>→Q2 (9) (moderate) | No significant difference was found between two groups. | Intemet-based counseling is equivalent to individual counseling for smoking cessation in patients taking varenicline. Additional studies with more complete and longer-term (>1 year) follow-up are needed to confirm these findings. |
| 9. | 148 | No | McClure 2014 [10] - USA | RCT | 68% 1261/ 1865 | Web-based intervention Message tone (prescriptive/ motivational), Navigation autonomy (dictated / not), | "Acceptance and commitment therapy's theory- | 7-day PPA Tone | 12m | 13 | 14.5 | A 1<br>B 1<br>C 3<br>D 2<br>E 1<br>F 2 | None of the design treatment improved treatment outcome. The adverse effect observed for testimonials was provocative. | Retention rates were low Many participants failed to view the intervention, emphasizing the important role of monitoring and reporting treatment |

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| | | | | | | e-mail reminders (y/ n), personally tailored testimonials (yes/ no). | based process of change" | | | | | →Q2 (9) (moderate) | | exposure.<br>This study indicated a model for future investigation testing the "active ingredients" of web-based interventions. |
| 10. | | Yes | Elfeddali 2012 [11] - Netherlands. | RCT | | I1 (AP): Tailored feedback at baseline, in addition to do an online 6 preparatory and coping planning assignments<br>I 2 (AP+): similar AP but 11 assignments after quit attempt (14 total)<br>C: usual care. | SCT, based on I-Change model | continuous abstinence (Cotinine validation) | 12m | 22 | 33 | A 1<br>B 1<br>C 1<br>D 2<br>E 1<br>F 3<br>→Q2 (9) (moderate) | The interventions were significantly more effective than the control condition. | High losses to follow-up, Contamination risk (unable to prevent respondents from using additional help to quit smoking)<br>The cut-off point for the minimum dose sample (sample 3) was not based on empirical findings. |
| 11. | 61 | Yes | Stanczyk 2016 [12] – Netherlands Recruited from website and GP | RCT | 52% 1095/ 2099 | web-based multiple computer-tailored smoking cessation interventions:<br>I1: video-based condition (VC): In the video condition, exactly the same tailored messages were used by adults giving this information in video messages.<br>I2: the text-based condition: Multiple tailored feedback via text-based messages<br>C: brief generic text advice | CBT | 7-day PPA (video vs text)<br>PA (video vs text) | 12m<br>13m | 16<br>6 | 18<br>10 vs 7 | A 2<br>B 1<br>C 3<br>D 2<br>E 2<br>F 3<br>→Q3 (13) (weak) | The video-based computer-tailored intervention was effective in improving substantial long-term abstinence compared to other conditions. | "Measurement of SES has been shown to be subject to criticism and debate<br>Participants conducted biochemical validation of self-assessed smoking status at home.<br>High dropout rate<br>Effect size differences between VC, CC, VC and TC were small " |
| 12. | 146 | No | Manson 2012 [13]<br>-UK<br>Online recruitment | RCT | 41% (722/ 1758) | I: received a tailored cessation advice report and progress report via website iQuit<br>C: received a standardized (non-tailored) cessation advice report | SCT and the perspectives on change model | 24h PPA | 6m | 15 | 14 | A 2 (50%)<br>B 1<br>C 1<br>D 2<br>E 1<br>F 3<br>→Q2 (10) (moderate) | The intervention group did not differ from the control group on the treatment outcome | "A web-based intervention that tailored content according to smoking-related beliefs, personal characteristics and smoking patterns, self-efficacy and outcome expectations, was not more effective than web-based materials presenting broadly similar non-tailored information". |
| | | | | | | | | 3m PA | 6m | 9 | 9 | | | |
| | | | | | | | | 1m PA | 6m | 12 | 11 | | | |
| | | | | | | | | 7d PPA | 6m | 14 | 13 | | | |
| 13. | 182 | Short-term effe | Smit 2012 [14] - Netherlands Online recruitment (mass media) | RCT | 29.1% (259/ 1123) | I: received the fully automated Web-based multiple computer-tailored smoking cessation program | TTM | 24h PPA, | 6m | 10 | 17 | A 3<br>B 1<br>C 1<br>D 3<br>E 1 | Short-term improvement on 24-hour PPA and prolonged abstinence rates at 6 weeks were reported but no | Further research should aim at identifying strategies that will prevent high attrition. |
| | | | | | | | | 7-day PPA | 3m | 6 | 8 | | | |
| | | | | | | | | 6m PA | 6m | 3 | 4 | | | |

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| | | ct | | | | http://www.persoonlijkstopadvies.nl.sci-hub.cc http://www.trialregister.nl.sci-hub.cc/trialreg/admin/rctview.asp?TC=1351 C: received no intervention. | | | | | | F 3 →Q3 (12) (weak) | intervention effects could be identified after 6 months. | |
| 14. | 159 | Yes | Pechmann 2017 [15] – USA Online recruitment | RCT | 84% (135/160) | I: Nicotine patches, Smokefree.gov website links, daily discussion topics via Twitter, and daily engagement feedback via text (www.smokefree.gov ) C: Nicotine patches + Smokefree.gov website links | Pharmacotherapy +Social cognitive | 7-day PPA | 60d | 41 | 55 | A 2 B 1 C 2 D 3 E 1 F 1 →Q2 (10) (moderate) | "Tweet2Quit doubled sustained abstinence out to 60 days follow-up" | "Tweet2Quit was engaging and doubled sustained abstinence. Its low cost and scalability makes it viable as a global cessation treatment" |
| 15. | 161 | No | Pike 2007 [16] – USA Online recruitment | RCT | 54% (3500/6451) | I: to one of five interactive sites (www.cancer.org) C: a static Internet site with quitting advice. Long-term abstinence reported in Rabius 2008 | TTM | 7-day PPA | 3m | 22 | 24 | A 1 B 1 C 2 D 3 E 1 F 3 →Q3 (12) (Weak) | No significant differences in quitting rates among study participants assigned to one of the five interactive sites or to the American Cancer Society's static site. Interactive Internet sites yielding high levels of utilization can increase quitting success | "Future studies investigate how Internet and telephone assistance can be combined." (i) Low statistical power and the observed significant differences are based on a post hoc combination of two and three sites into the two respective groups. (ii) This study was not designed for side-by-side comparisons of the five interactive sites. " |
| 16. | 241 | Yes | Rabius el al. 2008 [17] – USA | RCT | 54% (2468/6451) | I: accessed to one of five tailored interactive sites provided by cooperating research partners C: a targeted, minimally interactive ACS site www.cancer.org | N/A | 30-day PPA | 13m | 10 | 13 | A 1 B 1 C 2 D 3 E 1 F 3 →Q3 (12) (Weak) | The quit rates were 13%, higher than control group (10%, p =0.04). | Tailored, interactive webpage may support cigarette smokers who do not report an indicator of depression at baseline to improve smoking cessation. |
| 17. | 213 | Yes | Dallery 2016 [18] - USA | RCT | 68% (64/94) | I: received financial incentives (up to $480/7weeks based on video-verified abstinence using breath CO output via theMõtiv8 website smokefree.gov, QuitNet.com | CBT | 7-day PPA (*) | 1m, 3m, 6m | 13 20 13 | 40 29 23 | A 1 B 1 C 1 D 3 E 1 F 2 →Q2 (10) (moderate) | Short-term only Abstinence rates were significant difference at 4 weeks between two groups, but not at the 3-, or 6- month follow-ups. | Selection bias: "the sample's demographic characteristics might not representative of the cigarette smokers in the US" Future studies should |

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| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | C: financial incentive based on submitting CO samples. | | | | | | | | investigate the economic feasibility and sustainable treatment delivery models. |
| 18. | 18 | Yes | Choi 2014 [19] - USA | RCT | 72% (105/145) | I: received "Tobacco Tactics website contains humorous graphics tailored to operating engineers, tailored cessation feedback, nurse counseling via phone and/or email, and/or e-community and access to NRT".<br>C: Received counseling via telephone and NRT. | Phamarco therapy | 7-day PPA | 1m,<br>6m | 8<br>12 | 27<br>12 | A 1<br>B 1<br>C 3<br>D 3<br>E 1<br>F 2<br>→Q2 (11) (weak) | Short-term effect<br>The intervention group had significantly greater quit rates than the quit line group at 30-day follow-up but the differences were not significant at 6-month follow-up. | The sample was mainly white and male. There were baseline differences between the groups<br>Only one-third of the operating engineers completed the biochemical validation.<br>The multi-component Tobacco "Tactics intervention was provided by one study nurse, perhaps causing an intervener effect by increasing engagement in the intervention and impact on the outcomes, which may influence construct and the internal validity" |
| 19. | 184 | Yes | Stanczyk 2014 [20] – Netherlands Online recruitment | RCT (single blind) | 69% (1453/20990 | Web-based multiple computer-tailored smoking cessation interventions with 2 experimental conditions:<br>I1:text-based computer tailored feedback on their smoking behavior<br>I2: video-based computer tailoring<br>C: received only a single generic short text advice | SCT | 7-day PPA (Video vs text) | 6m | 15 | 21vs 18 | A 2<br>B 1<br>C 2<br>D 2<br>E 1<br>F 2<br>→Q1 (10) (strong | Video computer tailoring was more effective in increasing 7-day PPA, and prolonged abstinence rates than the control group. | (i) Underestimated smoking rates due to self-reported measurement.<br>(ii) during the intervention, participants were not able to set up a quit date within a week of baseline.<br>Video-based messages with personalized feedback might be effective in increasing abstinence rates for smokers with diverse educational levels. |
| | | | | | | | | 6m PA (Sample 1: Video vs text) | 6m | 12 | 23vs 10 | | | |
| | | | | | | | | 6m PA (Sample 2: Video vs text) | 6m | 12 | 14 vs 8 | | | |
| 20. | 185 | Yes | Strecher 2008 [21] – USA Recruited from memberships of two health management organizations | RCT (fractional factorial design) | 76% (1415/1866) | A web-based smoking-cessation program plus nicotine patch.<br>I1: high- vs. low-depth tailored success story,<br>I2: outcome expectation, and<br>I3: efficacy expectation messages;<br>I4: high- vs. low-personalized source;<br>I5: multiple vs. single exposure to the | SCT | 7-day PPA (success stories vs outcome expectations vs and efficacy expectations)<br>Utilization | 6m<br>I1<br>I2<br>I3<br>I4<br>I5 | 26.8<br>28.7<br>28.5<br>27.4<br>31.3 | 34.3<br>32.2<br>32.4<br>33.6<br>29.6 | A 1<br>B 1<br>C 2<br>D 2<br>E 1<br>F 2<br>→Q1 (9) (strong | Abstinence was most influenced by high-depth tailored success stories and a high-personalized message source.<br><br>The tailoring depth factors resulted in greater rates of 6-month cessation. | Self-report based measurement<br><br>The study suggested the importance of higher-depth tailoring in smoking-cessation programs. |

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| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | intervention components. www.chcr.umich.edu | | | | | | | | |
| 21. | 199 | Yes | Swan 2010 [22] – USA<br><br>Recruited from health care organization | RCT | 74% (892/ 1202) | I1: web-based counseling, contained standardized content and interactive tools<br>I2: proactive telephone-based counseling (PTC) for problem-solving and coping skills, secure social support, and design a plan for successful cessation and long-term abstinence<br>I3: combined PTC and web counseling | N/A | 7-day PPA (PCT vs PTC+web )<br><br>30-d PPA (PCT vs PTC+web )<br><br>Treatment Utilization | 3m<br>6m<br><br>3m<br>6m | 39<br>31<br><br>33<br>27 | 49 vs 43<br>34 vs 34<br><br>42 vs 39<br>31 vs 30 | A 1<br>B 1<br>C 1<br>D 2<br>E 1<br>F 2<br>→Q1 (9) (strong | Shortterm effect<br>The PTC group had a significantly greater percentage of abstinence than the web group at 3 months, but no between-group differences in abstinence outcomes were detected at 6 months. | (i) self- report smoking assessment<br>(ii) The interventions can be considered as being of" low intensity. (iii) No guarantees that the participants would be adequately engaged in treatment<br>(iv) The lack of a no-medication control group |
| 22. | 209 | Yes | Brendryen 2008a [23] – Norway<br><br>Recruitment: via online advertisement | RCT | 80% (233/ 290) | I: received Happy Ending (HE), an intense 1-year smoking cessation program delivered via the Internet and cell phone including email, Website, interactive voice response, and SMS technology without NRT<br>C: received a 44-page self-help booklet. | N/A | 7-day PPA<br><br>Acceptability | 12m | 7 | 20 | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 1<br>→Q1 (6) (strong | "Participants in the intervention group reported clinically and statistically significantly higher repeated point abstinence rates than control participants" | (i) self-reported assessment<br>(ii) self-selection recruitment<br>"This 12-month trial documents a long-term treatment effect of a fully automated smoking cessation intervention without the use of nicotine replacement therapy. The study adds to the promise of using digital media in supporting behavior change." |
| 23. | 210 | Yes | Brendryen 2008b [24] – Norway<br><br>Internet advertisement | RCT | 75% (296/ 396) | I: received an internet- and cell-phone-based Happy Ending - fully automated and digitally delivered smoking cessation intervention. The intervention concluded more than 400 contacts by email, web pages, interactive voice response and SMS technology with NRT<br>C: received a self-help booklet | | 7-day PPA | 1m<br>3m<br>6m<br>12m | 30<br>29<br>22<br>24 | 50<br>45<br>37<br>38 | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 1<br>→Q1 (6) (strong | "Participants in the treatment group reported clinically and statistically significantly higher repeated point abstinence rates than control participants.<br>Improved adherence to NRT and a higher level of post-cessation self-efficacy were observed in the treatment group compared with the control group" | "As the first RCT documenting the long-term treatment effects of such an intervention, this study adds to the promise of digital media in supporting behavior change" |
| 24. | 130 | Yes | Graham 2015 [25] - USA | RCT | 88% (1091/ 2005) | I1-Enhance Internet (EI): 6-month free access to the premium service of QuitNet,<br>I2-Enhance Internet plus | CBT | 30-day PPA (EI)<br><br>30-day PPA (EI+P) | 6m<br><br>6m | 12<br><br>12 | 14<br><br>27 | A 1<br>B 1<br>C 1<br>D 1<br>E 1 | "Significant mediators of 30-day PPA were changes in smoking temptations, quitting confidence, and positive | The addition of telephone counseling to an enhanced Web site further improved abstinence rates, partly via an association with |

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| | | | | | | phone (EI+P): 6month free access to QuitNet plus five proactive telephone counseling calls<br>C-Basic Internet(BI):6-month free access to an information-only comparison condition comprised of the major content on www.QuitNet.com | | | | | | F 1<br>→Q1 (6) (strong | and negative partner support, which were strongly associated with increased Web site utilization". | increased quitting confidence. Baseline smoking rate was the only significant moderator." |
| 25. | 220 | Yes | Graham 2011 [26] - USA | RCT | 68%<br><br>1348/ 2005 (BI 68.6% (466), EI 69% (449), EI+P 67.1% (453)) . | (I1) Enhanced Internet (EI):free, 6-month access to the full version of QuitNet.com<br>(I2) EI and telephone combined (EI + P): 6-month free access to the full QuitNet Web site and proactive telephone counseling www.QuitNet.com<br>C: Basic internet (BI): static, information-only comparison | CBT | 30-day PPA (EI)<br><br>30-day PPA (EI+P) Uptake Acceptability | 3m<br>6m<br>12<br>18m | 9<br>7<br>5<br>4 | 10<br>7<br>5<br>5<br><br>19<br>12<br>10<br>8 | A 2<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q1 (8) (strong | At 18 months, the 30-day multiple PPA rate of EI+P condition was significantly greater than BI and EI.<br>At 18 months, 30-day single PPA rates did not differ among the groups. | (i) ,the selection of an appropriate control condition raises pragmatic, ethical<br>(ii) generalizability is limited to that sample frame<br>(iii) The lower follow-up assessment rate among EI+P participants at 3 months<br><br>Combined Internet and telephone treatment outperforms static and dynamic Internet interventions. |
| 26. | 186 | Yes | Strecher 2005 [27] - UK and Republic of Ireland<br><br>Website recruitment | RCT | 38% (1491/ 3971) | I: Web-base tailored behavioral smoking cessation materials including three sequential tailored newsletters delivered via the web and behavioral support messages delivered via email + a supportive person that would receive an e-mail message with tailored advice for supporting the subject.<br>C: web-based non-tailored materials. | SCT and TTM | 30-day PPA<br><br>10w abstinence at 12w | 6w<br><br>12w | 24<br><br>18 | 29<br><br>23 | A 1<br>B 1<br>C 2<br>D 2<br>E 1<br>F 3<br>→Q2 (10) (moderate) | Continuous abstinence rates at 6 weeks and 12 weeks were statistically significant higher in the tailored condition vs. the non-tailored condition<br><br>Satisfaction with the intervention was significantly greater in the tailored than in the non-tailored groups. | This study suggested a benefit of the web-based tailored behavioral support materials used in conjunction with nicotine replacement therapy.<br><br>(i) short follow-up period.<br>(ii) Self-reported assessment (iii) Unable to isolate the effects of tailoring on the efficacy of smoking cessation materials |
| 27. | 165 | Yes | Ray 2014 [28] – USA<br><br>recruited from community- | RCT | 14% (258/ 1814) | I: received a proactive e-referral of smokers to a web-assisted tobacco induction system called Decide2Quit.org, | TTM | quit rate during 30 day | 6m | 0.9 | 2.9 | A 1<br>B 1<br>C 2<br>D 2<br>E 1 | The proportion who quit was greater for intervention than control group. | e-referrals were "effective in getting the smokers to the web-assisted smoking-cessation induction system and in assisting smokers |

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| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | based dental practices | | | C: used paper referrals (information prescriptions) to refer smokers to the Decide2Quit.org. www.ajpmonline.org , www.Decide2Quit.org www.ReferASmoker.org | | | | | | F 3 →Q2 (10) (moderate) | | with quitting". |
| 28. | 139 | Yes | Houston 2015 [29] - USA | RCT | 52% 9466/ 900) | C: a state-of-the-art tailored web-assisted tobacco interventions (WATI), I1: "the WATI + proactive, pushed tailored email +motivational messaging" I2: "The WATI+ personal secure messaging + an online support group" | | PA (in personalized group vs messaging group) | 6m | 17 | 25.2 vs 26.7 | A 1 B 1 C 1 D 1 E 1 F 3 →Q2 (8) (moderate) | The I2 group had a 6-month cessation rate of 25.2 %, compared with the I1 group (26.7 %) and the control (17 %). Those received the two groups that received either motivational messaging or personalized were more likely to quit than those in the control. | "For the increasing numbers of patients who can access the Internet, email or text messages, clinical practice e-referrals will result in higher rates of engagement, enhancing the reach of technology-assisted publically available interventions, and potentially enhancing clinical interventions. " |
| 29. | 195 | Yes | Wittekind el al. 2015 [30] | RCT | 61% (156/ 257) | Participants were received one of two different versions of the smoking-related AAT: (I1) the standard Approach-Avoidance Task (AAT) retraining automatic behavioral tendencies in cigarette smoking (I2) modified AAT+ individual feedback www.unipark.com/de C: a waitlist control group. | CBT | cigarette/ day FTND Satisfaction (52.6%) | 4w | 20 4.7 | 18 4.4 | A 1 B 1 C 1 D 3 E 1 F 2 →Q2 (9) (moderate) | The standard AAT resulted in a significant reduction in cigarette smoked, nicotine dependence, and compulsive drive. No effect was seen in the control group. | (i) No active control condition was applied. (ii) Individual use was not tracked due to self-application and not assessed in the post-assessment. (iii) did not obtain follow-up data. (iv), Self-reported assessment. "The AAT might be a feasible instrument to reduce tobacco dependence and can be applied as an online intervention." |
| 30. | 234 | Yes | Oenema 2008 [31] – Netherlands Recruited form members of an online research panel | RCT | 25% (547/ 2159) | I: an internet-delivered computer-tailored lifestyle intervention http://www.gezondlevencheck.nl C: No intervention . | Social Cognitive Stages Model | Smoking status | 1m | 2.9 | 4 | A 2 B 1 C 2 D 1 E 1 F 3 →Q2 (10) (moderate) | No significant intervention effects were found for self-reported smoking status. | (i) Selection bias: Age and non-native Dutch difference between two groups. All participants were voluntary members of an online recruitment (ii) Selective sampling poses a limitation to the generalizability (iv) Self-reported assessment, (v) Higher dropout among the intervention group. |
| 31. | 69 | No | Harrington 2016 [32] – USA | RCT | 81% (1237/ | C: usual care provided a quit plan template, and | | 30-day PPA (*) | 6m | 26.8 | 25.4 | A 2 B 1 | No difference was found between study arms for | Low intervention engagement Self-reported |

| # | ID | Effect (Y/ N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
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| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | Smokers from a tertiary care hospital stay | | 1447) | quitline contact<br>I: Web-based intervention included asynchronous e-message with a tobacco counselor + automated e-mail messages tailored for health concern and readiness to quit | | | | | | C 2<br>D 1<br>E 1<br>F 1<br>→Q2 (10) (moderate) | self-reported abstinence rates<br>diagnosis"<br>Costs were $53,802 for WI and $3,875 for UC | measurement |
| 32. | | Yes | Etter 2005 [33] – Switzerland<br><br>Website visitors | RCT | 35%<br>4237/ 11969 | I: original online, interactive smoking cessation program www.Stop-tabac.ch<br>C: to a modified program. Both programs consisted of tailored, personalized counseling letters + monthly email reminders. The original program was based on psychological and addiction theory. The modified program was contained more information on NRT and less information on health risks and coping strategies. | SCT and other behavior change principles | 7d PPA among current smokers vs<br>7d PPA among former smokers<br><br>Cost (US$ 60000/year) | 2.5m | 10.7 | 14.6 | A 2<br>B 1<br>C 1<br>D 2<br>E 1<br>F 3<br>→Q2 (10) (moderate) | Short-term outcomes only, so not included in comparisons<br><br>The results suggest that this program may be effective mainly in motivating contemplators to make a quit attempt. | - Few participants obtained additional counseling letters.<br>- More non-respondents in the modified program group than in the original program<br>- The study did not include a no-treatment control group |
| 33. | | N | Japuntich 2006 [34] - USA | R | 78%<br>221/ 284 | I: bupropion and counseling + 12 weeks of access to the CHESS SCRP website, comprised of quit smoking information, support center.<br>C: bupropion + counseling | SCT | 7-day PPA (*) | 3<br><br>6m | 2<br><br>12 | 2<br><br>15 | A 2<br>B 1<br>C 2<br>D 3<br>E 1<br>F 2<br>→Q2 (11) (moderate) | Participants in the intervention group was not significantly related to abstinence at the end of the treatment or at 6 months post-quit | - Internet connections were slow<br>- some features of the intervention may be challenge to replicate in real-world Internet interventions |
| 34. | | N | Smit 2016 [14,35] - Netherlands | R | 5<br><br>(232/ 414) | MTC group: received access to a Web-based multiple computer tailoring and counseling by a practice nurse<br>MT group: received access to computer tailoring without counseling<br>UC group: usual care | CBT Web vs tailored counseling | 24h PPA | 1<br><br>12m | 4<br><br>25 | 3 | A 1<br>B 1<br>C 3<br>D 1<br>E 1<br>F 3<br>→Q2 (10) (weak) | No significant difference was found between two groups<br>number of face-to-face and/or telephone counseling sessions to be combined with the Web-based program | - High rates of attrition<br>- Randomization conducted at respondent level, resulting in some degree of contamination." |
| | | | | | | | | 7-day PPA | 1m<br>12m | 40<br>23 | 36 vs 23 | | | |
| | | | | | | | | PA | 1m<br>12m | 29<br>19 | 27 vs 15 | | | |
| 35. | 149 | No | McDonnell et | RCT | 79% | I: received the online | 19 | 30-day PPA | 50w | 13 | 11 | A 1 | No significant difference | (i) self-reported |

| # | ID | Effect (Y/ N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
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| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | al. 2011 [36] – USA Recruited from Korean newspapers online | | (1112/ 1409) | version of the cessation programe, named Quitting is Winning @ www.beatsmoking.net C: received the booklet version of the same program which was mailed to their home | theories of motivation and addiction | 7-day PPA completion of the Internet programme | 50w | 18 | 18 | B 1 C 2 D 1 E 1 F 2 →Q1 (8) (strong) | was found between two groups | assessment, (ii) limited generalizability among Korean American only<br><br>Future studies should evaluate which specific parts of Web programs are most used and most useful. |
| 36. | | N | Moskowitz 2016 [37] – USA<br><br>The latest findings of McDonnell 2011 | RCT | 73% 294/ 403 | Two study conditions that differed in terms of financial incentives and existence of interim surveys. I: The high reinforcement (HR) condition included online interim surveys with financial incentives C: The low reinforcement (LR) condition more closely simulated how a conventional program might be disseminated. | N/A | 30-day PPA | 6m | | | A 1 B 1 C 2 D 1 E 1 F 2 →Q1 (8) (strong) | No significant difference was found between two groups | Future studies evaluate the effect of larger financial incentives for program completion than we employed.<br><br>(i) relied on self-reported data, (ii) Korean Americans who volunteer for a study may differ from the broader population of Korean American smokers, (iii) although 86% of study participants were male, |
| 37. | | N | Muñoz el al. 2009 [38] – recruited 500 Spanish and English-speaking online from 68 countries | RCT | 74% 735/ 1000 | Condition 1 -'Guía Para Dejar de Fumar,' a static National Cancer Institute evidence-based stop smoking guide; Condition 2: Condition 1 + E-mail reminders to return to the site; Condition 3: Condition 2 + mood management lessons; Condition 4 : Condition 3 + a 'virtual group' http://www.stopsmoking.ucsf.edu and http://www.dejardefumar.ucsf.edu | Theory of Planned Behavior | 7-day PPA Guía + ITEMs vs. Guía + ITEMs + MM vs. Guía + ITEMs + MM + VG | 1m 3m 6m 12m | 23 24 26 26 | 27 vs 29 vs 23 vs 26<br><br>29 vs 26 vs 24<br><br>27vs 30vs 34 | A 1 B 1 C 2 D 1 E 1 F 2 →Q1 (8) (strong) | There were no significant differences among the conditions | Follow-up surveys should inquire whether control participants used other smoking cessation methods, including other Web sites, of course. (i) The lack of an adequate control condition, (ii) Attrition at follow-ups was reduced (69.2%) at the 12-month follow-up. |
| 38. | | N | Richardson 2014 [39] - UK | RCT | 72% 3313/ 4631 | I: received treatment with StopAdvisor, C: an information-only website. | | 6 month sustained abstinence (*) 7-day PPA (*) | 7<br><br>7m | 15 | 1<br><br>15 | A 1 B 1 C 1 D 1 E 1 F 2 →Q1 (7) (strong) | The overall rate of smoking cessation was not significantly different between two groups. Future research should explore this possibility with a view to tailor the content of StopAdvisor to | (i) Participants directly recruited from the internet, (ii) research was done in a high-income country.(iii) Unable to comprehensively assess participants' use of other treatments during the trial.(iv) socio economic |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | | | | | | | | socioeconomic status | status was difficult to assess without an interviewer being present |
| 39. | 206 | No | Bolman 2015 [40] - Netherland | RCT | 22% 445/ 1982 | I: a web - assisted computer tailored smoking cessation intervention, an action planning (AP) intervention in which potential quitters C: The letter in the control group was shorter | SCT | 7-day PPA PA | 6m 6m | 42 10 | 44 16 | A 1 B 1 C 1 D 1 E 1 F 3 →Q2 (8) (moderate) | The AP intervention had no effect on PPA. | (i) Self-reported assessment. (ii) High loss to follow-up |
| 40. | 230 | No | Loughead 2017 [41] - USA | RCT | 78% 167/ 213 | I: 12 weeks of either computerized CT + NRT www.mybrainsolutions.com C: computerized relaxation (control) - training+NRT | Cognitive training condition+ Pharmaco therapy | 7-day PPA (*) | 6m | 25 | 15 | A 1 B 1 C 1 D 1 E 1 F 2 →Q1 (7) (strong) | Quit rates did not differ by treatment arm at either time-point, nor were there effects on withdrawal symptoms or smoking urges | Attrition rates were relatively low "Despite modest changes in cognitive performance, these results do not support the efficacy of computerized cognitive training as an adjunctive therapy for smoking cessation". |
| 41. | 231 | No | McKay 2008 [42] - USA | RCT | 27% 631/ 2318 | I: the QSN intervention condition presented cognitive-behavioral strategies, and C: the Active Lives control condition provided a guidance in developing a physical activity program to assist them with quitting. | SCT | 7-day PPA | 3m 6m | 8.9 9.7 | 8.5 10.4 | A 1 B 1 C 1 D 1 E 1 F 3 →Q2 (8) (moderate) | No between-condition differences in smoking abstinence were found at 3- and 6-month follow-up assessments | Due to limited engagement of participants, future research needs to address methods to improve participant engagement in online smoking cessation programs. |
| 42. | | N | Te Poel 2009 [43] - Netherland | R | 57% 352/ 615 | I: e-mail-delivered computer-tailored smoking cessation intervention, C: Control email, not tailored to personal, item-level motivational factors, amount of planning, demographics or biological factor | CBT | 24h PPA 7-day PPA | 6m 6m | 4 3.4 | 8.5 | A 1 B 1 C 1 D 1 E 3 F 3 →Q3 (10) (weak) | "Significantly more participants in the intervention group reported not having smoked in the last 24 hours and 7 days at 6 month follow up compared to participants in the control group." | (i) self-reported assessment (ii) Did not measure prolonged abstinence (iii) High loss to follow-up (57.4%) (iv) Recall bias due to long time to evaluate the e-mail feedback letter 6 months after receiving this e-mail. (iv) The lack of more relevant social influence measures |

| # | ID | Effect (Y/ N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
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| | | | | | | | | | | Control group % | Intervention group% | | | |
| 43. | 249 | No | Stoddard 2008-web-based [44] | RCT | 40% 546/ 1375 | I: the bulletin board condition including<br>(1) online quit guide and self-help materials<br>(2) links for reaching a cessation counselor via telephone or instant messaging,<br>(3) an interactive list of clinical trials still recruiting smokers who wish to quit smoking,<br>(4) an interactive smokers risk tool<br>(5) evidence about positive health changes<br>C: usual care (UC) | Pharmaco therapy | 7-day PPA | 3m | 7 | 7 | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 3<br>→Q2 (9) (moderate) | There were no statistically significant differences in quit rates between the BB and UC group. | Short-term outcomes only reported, not included in comparisons. |
| 44. | 255 | Short term | Wangberg 2011 [45] - Norway | RCT | 71% 847/ 1029 | C: a multicomponent, non-tailored Internet-based intervention for smoking cessation.<br>I: a version of the same Internet-based intervention with tailored content delivered on the website and via email. The participants in the intervention group received up to 150 tailored messages | | 7-day PPA | 1m<br>3m<br>12m | 9<br>9<br>12 | 15<br>14<br>11 | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q1 (7) (strong) | Short-term effect at 1 month and 3 month only | Tailoring an Internet-based intervention for smoking cessation seems to increase the success rates in the short term, but not in the long term. |
| 45. | 122 | Yes | Fraser 2014 [46]- USA | RCT | 80% (828/ 1024) | - Website: (I1) the National Cancer Institute's(NCI) Website (www.smokefree.gov vs (C1) a "lite" Web site)<br>-Quitline counseling: (I2) telephone quitline counseling vs (C2) none<br>-Message: (I3) motivational e-mail messages vs (C3) none<br>-Brochure: (I4) a smoking cessation brochure vs (C4) a lite brochure<br>-NRT: (I5) mini-lozenge nicotine replacement | N/A | 7-day PPA | 1m<br>3m<br>7m | 23<br>26<br>26.5 | 26<br>28<br>29.5 | A 2<br>B 1<br>C 1<br>D 1<br>E 1<br>F 1<br>→Q1 (7) (strong) | "The NCI Web site and NRT both increased abstinence; however, the former increased abstinence significantly only when it was not used with the e-mail messaging intervention (messaging decreased Web site use)." | (1) No placebo medication for the NRT condition nor were time/attention controls used for the quit line counseling condition; (2) self-reports assessment of abstinence;<br>(3) extra-experimental intervention resources may have been used differentially across conditions<br>(4) study requirements (e.g., the confirmation call) may have biased outcomes by affecting the nature of the population |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | therapy vs (C5) none | | | | | | | | |
| | | | | | | **For young smokers** | | | | | | | | |
| 46. | 196 | Yes | Woodruff 2007 [47] - USA | Cluster RCT | 73% 100/ 136 | I: an Internet virtual chat room with a trained cessation facilitator and other teen smokers. C: a measurement-only control condition | TTM | 7-day PPA | 3m 12m | 39 38 | 47 37 | A 3 B 1 C 2 D 2 E 3 F 2 →Q3 (13) (weak) | Significant reduction of smoking abstinence, and number of cigarette smoked in short-term (at post intervention) | The lack of longer-term results were found (3m, 12m follow up). Difference attrition rate between 2 groups (15% vs 33%). |
| 47. | | | Cameron 2015 [48]- UK-university students | RCT | 2,621 (43%) | I: non-tailored and interactive Internet intervention to complete 4 modules about health-related behaviour, content contained theory-based messages and planning exercises. After completing all modules, participants were accessed to the full website with further health messages and links on each of the 4 targeted health behaviours C: an email reminder to complete a questionnaire | SCT | smoking status | 6 monhs | 37.2% | 30.7% | A 1 B 1 C 1 D 1 E 1 F 3 →Q2 (moderate) | The intervention had significant effects on having smoked at university (self-report) | The relatively weak effects of the intervention may be due to the focus on multiple behaviors. |
| 48. | | Yes | Epton 2014 [49], UK university students | RCT | 1,445 | I: a tailored and interactive Internet-based intervention which included theory-based messages relevant to the targeted health behaviours and a planner that contained instructions to form implementation intentions. C: Assessment only | | Smoking status | 6 months | 13% | 8.7% | A 1 B 1 C 1 D 1 E 1 F 2 →Q2 (moderate) Attrition rates: I: 40%, C: 34% | The intervention had a statistically significant effect on one primary outcome, smoking status at 6-month follow-up. | Online health behaviour intervention reduced smoking rates |
| 49. | | Y | Simmons 2011 [50]- USA College smokers | RCT | 341 | I1: Web-delivered experiential tailored and interactive Internet intervention to increase motivation to quit smoking and reducing smoking, using cognitive | | 30-day PPA, 7-day PPA, motivation to quit | 1 months 6 months | 5% 23% | 15% 32% | A 1 B 1 C 1 D 1 E 1 F 1 →Q1 | At 6-month follow-up, the Web-Smoke intervention produced higher rates of smoking cessation than the Web-Nutrition control intervention. | Findings demonstrate the efficacy of a theory-based intervention delivered over the Internet for increasing motivation to quit and smoking abstinence among college smokers |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | dissonance theory as a model<br>I2: In-person, group-based, experiential smoking intervention<br>I3: Web-based traditional didactic smoking intervention<br>C: Web-based experiential nutrition intervention | | | | | | (strong) | | |
| 50. | | No | Bannink 2014 [51] – Netherlands Adolescents | RCT | 1256/1702 (78%) | (I1) The 'Tailored health message' intervention was a tailored and non-interactive Internet intervention requiring participants to visit the site and report on their cigarette smoking,<br>(I2) The 'Tailored health + peer coach' intervention included all components of the 'Tailored health message' intervention<br>(C): 6 sessions of non-health-related lifestyle content over the Internet | The theory of planned behavior | 30-day prolonged abstinence | 4 months | 80.2 | 82.3 | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q1 (7) (strong) | The E-health4Uth intervention, as a standalone intervention, showed minor positive results in health-related quality of life (B=2.79, 95% CI 0.72-4.87) | Future research is needed to further evaluate the effects of the consultation as a standalone intervention, and the dual approach of further tailored eHealth messages and a consultation. |
| 51. | 57 | No | Skov-Ettrup 2016 [52] - Denmark | RCT | 80%<br>1451/1810 | I1: proactive telephone counselling , contacted by a counsellor from the Danish national quitline and given the offer of five counsellor-initiated sessions<br>I2: reactive telephone counselling<br>I3: internet- and text-message-based intervention<br>C: self-help booklet | Self-Regulation Theory, TTM+SCT ,and Appreciative Inquiry | PA<br>30d PPA<br>30d PPA | 12m<br>1m<br>12m | 4<br>18<br>2 | 7<br>19<br>9 | A 2<br>B 1<br>C 1<br>D 1<br>E 2<br>F 1<br>→Q1 (8) (strong) | "Proactive telephone counselling was more effective than a self-help booklet in achieving prolonged abstinence for 12 months.<br>No clear evidence of an effect of reactive telephone counselling or the internet- and text-message-based intervention was found compared with the self-help booklet." | (i) Randomized method is not truly random<br>(ii) Lack of biochemical validation of smoking abstinence<br>(iii) All interventions were freely available to anyone implying a risk of contamination<br>(iv) The counsellors' skills in motivational interviewing were insufficient |
| 52. | 156 | Yes | Pardavila-Belio 2015 [53] - Spain | RCT | 88%<br>225/255 | I: consisted of a 50-minute motivational interview conducted by a nurse and online self-help material. The follow up included a reinforcing email and group therapy. | CBT + combined psychoeducation and motivational | 7-day PPA (*) | 6m | 6.6 | 21.1 | A 2<br>B 1<br>C 1<br>D 3<br>E 2<br>F 1<br>→Q2 (10) | At the 6-month follow-up, the smoking cessation incidence was doubled in the intervention group compared to the control group. | (i) the study was conducted at a single university and some contamination between the groups might occur;<br>(ii) blinding was not managed,<br>(iii) The last intervention |

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| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | C: received brief advice (5–10minutes) + self-help pamphlet.8 | technique s | | | | | (moderate) | | session was carried out 2months before the final evaluation. |
| 53. | 180 | No | Simmons 2013 [54] - USA | RCT | 97% 332/ 341 | I: a Web-based, experiential smoking intervention). (C1) a didactic smoking intervention (Didactic), (C2) a group-based experiential group, (C3) a Web-based nutrition experiential intervention (Web-Nutrition). | Theory of Reasoned Action, the TTM | 7-day PPA 30 d PPA | 1m 6m | 11 22.6 | 15 32 | A 2 B 1 C 1 D 3 E 2 F 1 →Q2 (10) (moderate) | 7-day point prevalence abstinence rates for the Web-Smoke condition did not differ from any of the control conditions. | (i) The intervention was not presented as a smoking cessation program and participants were not seeking assistance to quit smoking. (ii) The Web-Smoke intervention condition was conducted in a laboratory setting. (iii) Limit generalizability due to the fact that participants recruited from a single university. |
| 54. | 200 | Yes | An 2013 [55] - USA | RCT | 78% 1405/ 1698 | C: untailored general interest messages. I2: individually tailored health messages. I3: individually tailored health messages plus online peer support. | | 30-day PPA (Tx2 vs Tx3) | 7w 12w | 9 11 | 11 vs 14 23 vs31 | A 1 B 1 C 1 D 3 E 2 F 2 →Q2 (10) (moderate) | 30-day smoking abstinence rates were statistically significantly higher in the intervention groups. | (i) self-report assessment (ii) smoking abstinence was based on a relatively short-term follow-up (12 weeks). |
| 55. | 201 | Yes | An 2008 [56] - USA | RCT | 92% 494/ 517 | I: received online college life magazine that provided personalized smoking cessation messages and peer email support C: received a confirmation email containing links to online health and academic resources (QuitNet.com smoking cessation website, UM Boynton Student Health Services website, UM student academic services website) and able to join the Quit & Win Contest. | N/A | 30-day PPA (*) 7-day PPA | 30w 8w | 23 | 41 | A 1 B 1 C 1 D 2 E 1 F 1 →Q1 (7) (strong) | The rate of 30-day abstinence at week 30 was higher for the intervention compared to the control group. There was no difference in self-reported 6-month prolonged abstinence measured at week 30. | Neither participants nor investigators could be blinded as to group assignment. (i) This study was conducted upon a single campus and it is likely to have risk of contamination. (ii) This high level of incentives. |
| 56. | 43 | No | Mehring 2014 [57] - Germany | RCT | 72% 121/ 168 | I: participating in a web-based coaching program based on education, motivation, exercise | Model for treatment of tobacco use and | PA (*) 7d PPA | 12w 12w | 9 14 | 10 18 | A 1 B 1 C 2 D 3 | This trial did not show that the Web-based intervention was effective for achieving smoking | - Blinding: physicians were aware the intervention allocation, which could lead to bias. |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | guidance, daily short message service (SMS) reminding, weekly feedback, and active monitoring by general practitioners,<br>C: usual care | dependence | | | | | E 1<br>F 2<br>→Q2 (9) (moderate) | cessation compared to usual care. | - The highly variable cluster sizes<br>- The higher drop out rate in the intervention<br>- The content of the usual care was not further evaluated. |
| 57. | | N | Patten 2006 – US [58] | R | 9<br><br>(137/ 139) | I: Stomp Out Smokes (SOS), an Internet, home-based intervention.<br>C: a clinic-based, brief office intervention (BOI) consisting of four individual counseling sessions | | 30-day PPA (*) | 36w | | 1 | A 3<br>B 1<br>C 2<br>D 2<br>E 1<br>F 1<br>→Q2 (10) (moderate) | The 30-day, point-prevalence smoking abstinence rates for BOI and SOS were 12% versus 6% at week 24 and 13% versus 6% at week 36, with no significant treatment differences. | Additional research is needed to tap the potential capabilities of the Internet for adolescent smoking cessation using proactive, personalized, patient-education components. |
| | | | | | | **For smokers with special needs** | | | | | | | | |
| 58. | | N | Clark 2004 [59] – USA | R | 1<br><br>171/ 171 | current smokers undergoing low-dose fast spiral chest CT (SCTS) for lung cancer<br>I: Hand-out with a list of 10 Internet sites related to stopping smoking and a brief description of each site.<br>C: received a copy of a publication of the National Cancer Institute | T | 7-day PPA readiness to quit number of quit attempts,, utilization of intervention (*) | 12m | 5 | 1 | A 3<br>B 1<br>C 2<br>D 1<br>E 1<br>F 1<br>→Q2 (9) (moderate) | There were no statistically significant differences in 7-day point prevalence quit rates (5% versus 10%) or advancement in motivational readiness to stop smoking (27% versus 30%) | More investigation is warranted into how to tailor smoking interventions for cancer screening participants. |
| 59. | | N | Emmons 2013 [60] –USA and Canada For childhood and young adult cancer survivors and survivorship (>18 -55 years) | R | 3 | I: a tailored and interactive Internet intervention based on participants' motivation to quit smoking for 6 months<br>C: a non-internet-based non-active control, in which participants received a letter from the site oncologist + a self-help manual | | 30-day PPA | 15 months | 1 | 6 | A 2<br>B 1<br>C 1<br>D 1<br>E 1<br>F 3<br>→Q2 (9) (moderate)<br>Attrition rates: web arm 43%, control arm 12% | There were similar rates of cessation in the two arms, and no differences in quit attempts or readiness to quit. | The effect of print and Web formats yielded equivalent to telephone-delivered intervention. |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| 60. | Y | | Herbec 2014 [61] – UK Pregnant women | R | 2 | I: 'MumsQuit' had access to a tailored and interactive website offered an interactive, personalized, and structured quit plan and up to 4 weeks of post-quit date support, with email reminders<br>C: a 1-page static, non-personalised website that provided brief standard advice for users | 33 evidence - or theory-based behaviour change te | 4-week con-tinuous abstinence | 8 weeks | 2 | 2 | A 1<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q2 (moderate)<br>Attrition rates: 36.4% MumsQuit, 30.7% cont | The point estimate of odds ratio for the primary outcome was 1.5 (95% CI=0.8-2.9; 28% vs. 21%). | Two-arm double-blind pilot MumsQuit is an engaging and potentially helpful form of support for pregnant smokers. |
| 61. | 141 | No | Humfleet 2013 [62] USA<br><br>Recruited HIV positive smokers from clinics | RCT | 81% 169/ 209 | IC group: individual counseling + NRT;<br>SH group: received a self-help guide + NRT,<br>Intervention group: received a computer-based treatment, offered access to a Web site intervention modeled on the counseling intervention content + NRT | CBT | 7-day PPA (*) | 13.5m | 20 | 26 | A 2<br>B 1<br>C 3<br>D 1<br>E 1<br>F 1<br>→Q2 (9) (moderate) | No statistically significant differences in abstinence were found among the treatment conditions over time | - HIV related health data were not measured<br>- Limited generality due to participants recruited from public health settings. |
| 62. | 179 | Yes | Shuter 1999 [63] – USA | RCT | 97% 134/ 138 | I: received Positively Smoke Free on the Web+nicotine patche, www.positivelysmokefree.com/<br>C: self help brochure+nicotine patche | Pharmacotherapy | 7-day PPA (*) | 3m | 4.3 | 10.1 | A 2<br>B 1<br>C 3<br>D 2<br>E 1<br>F 1<br>→Q2 (10) (moderate) | Findings suggest therapeutic efficacy of web-based intervention ("Ten percent of the PSFW group vs. 4.3% of controls achieved the abstinence end point".). | (i) Small sample size,<br>(ii) Unable to precisely quantitate the level of engagement of each participant with the Web site.<br>(iii) The population is typical of urban HIV clinic in the US.,<br>(iv) Blinding: Six (8.7%) subjects in the standard care condition reported knowing someone in the intervention group |
| 63. | 221 | Yes | Haug 2011 [64] - Germany | Quasi-experiment | 90% 431/ 477 | I: Using internet program + up to seven individual counseling sessions through a computer expert system, informational websites and a message board. www.Rauchberatung.de | TTM | 7-day PPA<br>30d PPA | 6m<br>6m | 11<br>11 | 24<br>23 | A 3<br>B 3<br>C 2<br>D 1<br>E 2<br>F 1<br>→Q3 (12) (weak) | At 6-months follow-up, 7-day PPA was double as high in the intervention group compared with control group | (i) 37% of smoking patients in the participating rehabilitation centers regularly used the internet and email<br>(ii) the results presented are restricted to one follow-up assessment post-trial (iii) Self-reported assessment |

| # | ID | Effect (Y/ N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavioral theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | C: an assessment only | | | | | | | | |
| 64. | | Yes | Vilaplana 2014 [65] - Spain | R | 6<br><br>155/ 229 | I: Patients incorporated the S-PC tool, a web-based program with an interactive communication via mobile SMS+ e-mails from clinicians and advice and keep track of the patients and their status +NRT<br>C: followed a treatment that did not include S-PC+NRT | T | PA (not relapses and remained abstinent 3 months) (*) | 3m | 4 | 7 | A 2<br>B 1<br>C 2<br>D 3<br>E 1<br>F 1<br>→Q2 (10) (moderate | More participants in the S-PC group completed the treatment without relapses and remained abstinent three months after the completion of the treatment than participants in the control group . | Small number of patients involved in the study |
| 65. | 6 | No | Becker 2014 [66] - Switzerland | RCT | 26% 85/ 325 | Three brief Web-based and fully automated interventions<br>I1(NF): Self-assessment and normative feedback<br>I2 (MI): received feedback, including a brief summary of their indicated change + a brief informational text about the simultaneous cessation of tobacco and cannabis use<br>C: (PE) Psychoeducation | SCT+the perspectives on change model | Cigarette per day (not report abstinence rate) | 8m | 12.5 | 13.6 | A 2<br>B 1<br>C 2<br>D 2<br>E 1<br>F 3<br>→Q2 (11) (moderate | No differential effects between the interventions<br><br>Web-based interventions can increase the short-term readiness to quit tobacco and cannabis simultaneously. | High attrition rate<br>Not control for baseline assessment effects |
| 66. | | | Zullig 2014[67] – USA - with CVDor a CVD-risk equivalent (e.g. diabetes) | RCT | 96 | I: a tailored and non-interactive Internet intervention delivered over 3 months. (a web-based Framingham risk calculator+ Tailored educational information covered: diet, exercise, smoking, alcohol and tailored feedback)<br>C: a non-internet-based, non-active control arm (i.e. usual care, which was printed educational cardiovascular disease information and additional information at "their providers' discretion) | | 7-day PPA | 3 months | | | A 1 (block-randomized<br>B 1<br>C 1<br>D 2<br>E 1<br>F 2 (unclear)<br>→Q 1 (9) (strong) | There were no significant differences between the intervention and control groups smoking cessation | Modest clinical improvements can be achieved by web-administered interventions totally. |
| 67. | | No | Voncken-Brewster | RCT | 1,071/ 1,325 | I: a web-based, computer-tailored COPD | | 7-day PPA | 6 months | | | A 1<br>B 1 | No significant treatment effect was found on either | Participants were not blinded to group |

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | 2015 [68] [69] – Netherlands patient with COPD | | (80%) | self-management intervention on physical activity and smoking behavior<br>C: received no intervention | | | | | | C 1<br>D 1<br>E 1<br>F 1<br>→Q1 (6) (strong)<br>Attrition rates: 16%in treatment arm, 23% in cont rol arm | outcome. The application however, was used by only 36% of the participants in the experimental group. | assignment |

# B- Computer-assisted programs

| # | ID | Effect (Y/ N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavioral theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | **For adults** | | | | | | | | |
| 68. | | Yes | Prochaska 2001b [70] - USA | RCT | 67% 2571/ 4,447 | I: Individualized and interactive expert system computer reports (ES): three computer reports, divided in 4 sessions including (a) stage of change (b) feedback on the use of 6 change processes, C: tempting situations to smoke, how enhance self-efficacy (d) strategy to next steps<br>C: an Assessment only (AS) condition | TTM | 24h PPA | 6m<br>12m<br>18m<br>24m | 7.4<br>14.5<br>16.6<br>19.7 | 9.7<br>18<br>21.7<br>25.6 | A 1<br>B 1<br>C 1<br>D 2<br>E 1<br>F 3<br>→Q2 (9) (moderate | Abstinence rates were significantly greater in the Expert System (ES) condition than in the control condition with the absolute difference increasing at each follow-up. | "Further research is needed to determine whether continuing the program with additional interventions over 12 or 18 months would result in outcomes beyond the 25±30% abstinence range" |
| | | | | | | | | 7d PPA | 6m<br>12m<br>18m<br>24m | 7.3<br>13.8<br>16<br>19 | 9.3<br>17<br>20.4<br>24.9 | | | |
| | | | | | | | | 30d PPA | 6m<br>12m<br>18m<br>24m | 4.5<br>10.6<br>13.8<br>16.7 | 6.3<br>13.3<br>19.2<br>23.4 | | | |
| | | | | | | | | 6m PA | 12m<br>18m<br>24m | 2<br>5.8<br>7.7 | 4.1<br>8.1<br>12 | | | |
| 69. | | No | Meyer 2016 [71] - Germany | Three-arm RCT | 77% 1126/ 1462 | I1: computer-generated counseling letter interventions: 03 counseling letters tailored to the stage of change + self-help manuals.<br>I2: Reduction intervention with counseling letters and self-help manuals<br>C: minimal assessment-only. | Pharmaco therapy | 24h PPA (full vs reduction) | 12m<br>24m | 7<br>8.1 | 8 vs 11<br>15 vs 16 | A 1<br>B 1<br>C 1<br>D 3<br>E 2<br>F 2<br>→Q2 (10) (moderate | The smoking reduction intervention but not the abstinence intervention increased the odds of 6-month prolonged abstinence compared with the control group. | Underreporting of smoking Bias may result from differential demand characteristics of the study conditions. |
| | | | | | | | | 7d PPA | 12m<br>24m | 5.5<br>7 | 8 vs 10<br>13,vs 15 | | | |
| | | | | | | | | 30d PPA | 12m<br>24m | 4.9<br>6.8 | 7 vs 10<br>12 vs 14 | | | |
| | | | | | | | | 6m PA | 12m<br>24m | 1.3<br>4.2 | 3 vs 8<br>4 vs 9 | | | |
| 70. | | No | Sutton 2007 [72] - USA | three-arm RCT | 77% 1164/ 1508 | I: computer-generated individually tailored advice letter to encourage and support smokers to quit on their own rather than to direct them to stop smoking services. www.gppc27.medlan.cam.ac.uk/realthing<br>C: usual care with telephone counselling | TTM | 24h PPA | 6m | 19.9 | 22.6 | A 1<br>B 1<br>C 1<br>D 1<br>E 2<br>F 2<br>→Q1 (8) (strong) | Quit rates did not differ significantly between the two conditions<br>"Versions of the tailoring program could be used on the web and in general practices, pharmacies and primary care trust" | Self-report assessment,<br>"The design cannot rule out the possibility that the effectiveness of the letter among current cigarette smokers was not due to its highly tailored content—receiving a personal, non-tailored letter may have been equally effective". |
| | | | | | | | | 7d PPA | 6m | 17 | 20.7 | | | |
| | | | | | | | | 1 month prolonged abstinence | 6m | 15.6 | 18 | | | |
| | | | | | | | | 3 months prolonged abstinence | 6m | 13.7 | 14.5 | | | |

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavioral theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| 71. | | No | Meyer 2012 [73] - Germany | Clustering RCT | 27% 863/ 3215 | The three intervention options was offered to each GP:<br>C: practitioner-delivered brief advice;<br>I1: computer-generated tailored letters;<br>I2: a combination of both | TTM | 7-day PPA | 12m | 12 | 14 | A 1<br>B 1<br>C 1<br>D 1<br>E 2<br>F 3<br>→Q2 (9) (moderate) | No significant differences across study groups. Comparing the number of abstinent patients at follow-up revealed that the tailored letter and combination interventions were superior to the brief advice intervention | (i) relied on self-assessed abstinence; (ii) not able to obtain 12-month follow-up data for about one-quarter of the treated patients, which potentially could have distorted our study conclusions to some extent.(iii) findings must be viewed in the context of the German smoking culture, (iv) seven months, not evaluate the sustained outcome. |
| | | | | | | | | 6m PA | | 8 | 9 vs 12 | | | |
| 72. | | No | Hoving 2010 [74] - Dutch | RCT | 90% 914/ 1,019 | I: computer-generated tailored advice, distributed through 75 Dutch general practices (GP) and 65 pharmacies (PH). A tailored letter personalized by including individual information.<br>C: received a thank you letter | I-change model (TTM+ reasoned action) | 7-day PPA | 3m -CP<br>6m-GP<br>12m-CP | 5<br>15<br>10 | 8<br>15<br>13 | A 2<br>B 1<br>C 2<br>D 1<br>E 3<br>F 1<br>→Q2 (10) (moderate) | No main effects are found in the GP sample. | (i) In the GP sample, significantly more preparers were randomized into the experimental group.<br>(ii) Self-reported assessment<br>(iii) Limited personal contact with research staff<br>(iv) Errors in data entry |
| | | | | | | | | Continuous abstinence | 3m -CP<br>6m-GP<br>12m-CP | 3<br>9<br>2 | 4<br>10<br>2 | | | |
| 73. | | No | Schumann 2008 [75] - Germany<br>Recruited from examination survey in a university hospital | RCT | 34% 436/ 1270 | I: three individualized feedback letters generated by special expert-system software and additional stage-tailored self-help booklets.<br>C: assessment-only | TTM | 7-day PPA | 6m<br>12m<br>18m<br>24m | 3.4<br>8.9<br>11<br>16.2 | 3.8<br>10.2<br>13.2<br>16 | A 2<br>B 1<br>C 2<br>D 1<br>E 3<br>F 3<br>→Q3 (12) (e) | The study identified no significant differences between the intervention and control group | Underpowered study.<br>The study did not provide a validity test of the TTM.<br>The recruitment approach may have a specific sample bias." |
| | | | | | | | | 6m PA | 12m<br>18<br>24m | 2.1<br>7.7<br>9.1 | 3.2<br>8.2<br>9.8 | | | |
| 74. | | No | Wetter 2011 [76] - USA | RCT – Brief report | 87% 262/ 302 | I: a palmtop computer-delivered treatment<br>C: no further computer-delivered treatment or assessment (EMA-Only). | CBT | 7-day PPA + CO level of < 10 ppm (*) | 1m<br>6m<br>12m | 62<br>31<br>27 | 64<br>26<br>26 | A 2<br>B 1<br>C 3<br>D 1<br>E 1<br>F 1<br>→Q2 (9) (moderate) | The current study did not demonstrate the efficacy of such technology in improving treatment outcomes. | (i) The sample was largely White and consisted of women only. (ii) there was intensive adjuvant treatment. |
| 75. | | No | Riley 2002 [77] - USA | controlled before-and-after | 61% 77/ 93 | I: computerized scheduled gradual reduction (CSGR), Based on a 1-week baseline recording of | SCT + the perspectives on change model | 7-day PPA (*) | 1m<br>6m<br>12m | 0<br>0<br>6.1 | 8.5<br>4.6<br>11.4 | A 2<br>B 1<br>C 2<br>D 3<br>E 2 | No significant condition or time by condition effect | "(i) small sample size,.(ii) smoking rates in this study were determined via self-report only. Although biochemical validation |

| # | ID | Effect (Y/ N) | Authors -Country | Design | Reten -tion rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | study | | smoking, the program then scheduled, prompted, and gradually reduced smoking for 2 weeks to a 50% reduction goal. + 32-page guide C: a manual-based selective elimination reduction (SER) | | | | | | F 3 →Q3 (13) (weak) | | procedures have been established for cessation, validation procedures for reduced smoking via either biochemical or observational methods have not yet been established" |
| 76. | | Yes | Borland 2004 [78] - Australia | RCT | 70% 742/ 1058 | I: a series of questionnaire assessments leading to tailored computer-generated advice letters . C: a no extra treatment control sent standardized printed self-help materials. | Integrated Change Model+ Attitude-Social influence-Self Efficacy mode | 7-day PPA 6 months sustained abstinence | 12m 12m | 25 12 | 28 20 | A 1 B 1 C 2 D 3 E 2 F 2 →Q2 (11) (moderate) | 6-month sustained abstinence was reported by significantly more participants in the computer-generated tailored advice (20%) than the standard printed materials condition (12%) at 12-month follow-up | (i) A limitation of this study is that it is somewhat inconclusive whether the effectiveness of the programme should be attributed to its tailored content or to the greater amount of resources provided to those in the intervention group. (ii) effect of confounders in the study. |
| | | | | | | **Computer assisted program for adolescents** | | | | | | | | |
| 77. | | No | O'Neill 2000 [79] - USA | Quasi-RCT | 86% 56/65 | I: A computer administered intervention (software adapted from the smoke Mall program) C: addressed other health behaviors | TTM | 7-day PPA | 1m 7m | 15 29.6 | 19 31 | A 3 B 1 C 2 D 3 E 2 F 1 →Q3 (12) (weak) | No significant difference between intervention and control groups. | (I) small sample size. (ii) no objective verification abstinence, relying solely on self-report (iii)the lack of a no-treatment control condition, (iv) the sample may not be representative all participants. |
| | | | | | | | | CA | 6m | 14 | 19 | | | |
| 78. | | No | Prokhorov 2008 [80] - USA | RCT | 77% 326/ 426 | I: consisted of (1) a motivational counseling intervention and (2) feedback about lung function and expired CO levels C: Standard care ( brief counseling from 5 to 10 min)+ self-help manual. | | 7-day PPA 7-day PPA + salivary cotinine values ≤5 ηg/mL (*) | 10m | 24.4 10.1 | 28.5 16.6 | A 3 B 1 C 1 D 2 E 1 F 2 →Q2 (10) (moderate) | No significant difference between two groups | No ITT analysis Low sample size at mid-point, one of The targeted LAYH campuses had to be replaced with another one which might affect randomization |

# C- mHealth interventions

| # | ID | Effect (Y/N) | Authors -Country | Design | Reten -tion rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group % | | | |
| | | | | | | **Adults** | | | | | | | | |
| 79. | 4 | No | Alessi 2016 [81] - USA | RCT | 90% 81/90 | **C: (mhealth monitoring):** self CO test and recorded by camera (study cell phone). Brief counselling (~10') by phone. + 8 weeks of transdermal nicotine<br>**I: (mhealth reinforcement):** like control group but smoking-negative CO tests resulted in chances for prizes | SCT + the perspectives on change model and informed by pre- vious research | 7-day PPA | 4w<br>13w<br>24w | 44<br>26<br>26 | 50<br>29<br>21 | A 1<br>B 1<br>C 3<br>D 2<br>E 1<br>F 1<br>→Q2 (9) (moderate) | mHealth reinforcement has short-term efficacy. No significant effect was found at 6 month follow up. | "Missed test was coded as smoking-positive (bias) Medication adherence rates also did not differ between conditions " |
| 80. | 5 | No | Augustson 2016 [82] - China | RCT | 43% 3422/ 8000 | I: The high-frequency text contact (HFTC) group received one to three messages daily containing smoking cessation advice, encouragement, and health education information.<br>C: The low frequency text contact (LFTC) group received one weekly message with smoking health effects information | SCT | 7-day PPA | 1m<br>3m<br>6m | 30<br>28<br>28 | 31<br>27<br>28 | A 1<br>B 1<br>C 3<br>D 2<br>E 2<br>F 3<br>→Q1 (12) (weak) | "No significant difference between the two groups in an intent-to-treat analysis" "A text message–based smoking cessation intervention can be successfully delivered in China and is acceptable to Chinese smokers, but further research is needed to assess the potential impact of this type of intervention" | Baseline data were not collected on variables such as smoking history, patterns of tobacco use, and demographic characteristics. Relying on self-report via text High opt-out rates |
| 81. | 155 | No Long term | Naughton 2014 [83] - UK | RCT | 71% 425/ 602 | C: usual care<br>I: The intervention consisted of usual care plus a tailored advice report and a programme of tailored text messages generated by the iQuit system. The text messaging component consisted of a 90-day programme of automated text messages sent to the smoker's mobile phone | | 2w PPA<br>2w PPA (*)<br>6m Prolonged abstinence | 8w<br>6m<br>4w | 40.3<br>23.4<br>8.9 | 45.2<br>27.1<br>15.1 | A 1<br>B 1<br>C 3<br>D 1<br>E 2<br>F 2<br>→Q2 (10) (moderate) | "There were no significant between-group differences in 2w PPA at 8w. Six-month prolonged abstinence was significantly higher in the iQuit arm" | (i) Not able to capture accurately the number of individuals approached informally about the study who subsequently decided not to participate.<br>(ii) self-report assessment". |

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group % | | | |
| 82. | 197 | No | Ybarra 2012 [84] - Turkey | RCT | 79% (119/151) | I: received text messaging intervention, SMS Turkey, provided 6 weeks of daily messages<br>C: received a brochure of smoking cessation. | N/A | PA (*) | 3m | 5 | 11 | A 3<br>B 1<br>C 2<br>D 3<br>E 2<br>F 2<br>→Q3 (13) (weak) | "Three-month cessation trends were not significantly higher in the intervention group" | (i) 34% did not attend the initial enrolment meeting<br>(ii) small sample size<br>(iii) the original randomization technique did not seem to be assigning participants to the study arms equally<br>(iv) Neither participants nor researchers were masked to arm assignment. |
| 83. | 2 | Yes | Abroms 2014 [85] - USA | RCT | 76% 381/503 | I: Text2Quit program consists primarily of automated, bidirectional text messages. E-mails and a web portal are offered as supportive features.<br>C: received a web link to Smokefree.gov, a leading website with quitting smoking information run by the NCI | SCT | 30-day PPA (*)<br>7-day PPA<br>7-day PPA | 6m<br>6m<br>3m | 5<br>20.8<br>19.9 | 11<br>31.7<br>33.2 | A 3<br>B 1<br>C 2<br>D 3<br>E 2<br>F 2<br>→Q3 (13) (weak) | "Biochemically confirmed repeated point prevalence abstinence favoured the intervention group, with 11.1% abstinent compared to 5.0% of the control group (relative risk¼2.22, 95% CI¼1.16, 4.26, po0.05)" | Low level of contamination<br>Low response rate (64.7%) among those eligible for providing a saliva sample<br>Limited generalizability due to a distinct group with specific attributes. |
| 84. | | Yes | Bock 2013 [86] - US | RCT | 86% 52/60 | 30' smoking cessation counseling<br>I: TXT-2-Quit: an 8-week programme with 1-4 text messages/day (depending on quit stage). Smoking cessation messages were tailored to the participant's stage of smoking cessation<br>C: daily non-smoking TXT | SCT | 7-day PPA<br>7-day PPA<br>24h PPA | 3m<br>6m<br>6m | 3.6<br>3.6<br>7.1 | 16.7<br>20<br>20 | A 1<br>B 1<br>C 1<br>D 1<br>E 2<br>F 1<br>→Q1 (7) (Strong) | "Overall significant group difference in 7-day PPA across all follow-up time points."<br>"Intervention feasibility was greatly improved by switching from traditional face-to-face recruitment methods (4.7% yield) to an online/remote strategy (41.7% yield)." | "The TXT-2-Quit system, these initial findings provide promising evidence that a text-based intervention can be successfully implemented with a diverse group of adult smokers" |
| 85. | | No | Borland 2013 [87,88] - Australia | RCT | 3,052/3,530 (88%) | I1: web-based expert system (QuitCoach) with automated tailored advice;<br>I2: onQ: text messaging program (onQ) a stream of daily SMS tailored to the user's progress towards quitting;<br>I3: both as an integrated package; the choice of using either or both; | CBT<br>Only onQ and control arms used in analysis | 7-day PPA<br>6m sustained abstinence (onQ vs QuitCoach | 7m<br>7m | 20.1<br>6.2 | 24 vs 21<br>9 vs 8.7 | A 2<br>B 1<br>C 1<br>D 1<br>E 1<br>F 1<br>→Q1 (7) (Strong) | No differences between the interventions<br>. | "Smokers interested in quitting who were assigned randomly to an offer of either the QuitCoach internet-based support program and/or the interactive automated text-messaging program had non-significantly greater odds of quitting for at least 6 months than those randomized to an offer of a simple information website" |

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group % | | | |
| | | | | | | C: a control condition informed of a static website. | | | | | | | | |
| 86. | | No | Ferguson 2012 [89] - Australia | RCT | 85% 242/ 284 | I: Self-help Quit booklet + 4 or 5 randomly timed text messages/day containing quit smoking advice<br>C: Self-help Quit booklet | N/A | 7-day PPA<br>7-day PPA (*) | 1m<br>6m | 6.3<br>10.6 | 3.5<br>9.2 | A 2<br>B 1<br>C 1<br>D 3<br>E 1<br>F 1<br>→Q2 (9) (moderate) | "The intervention did not significantly delay the time to first lapse after initial abstinence and there was no effect on short or longer term quitting" | "Future studies should assess the effect of text messages on compliance and adherence to pharmacotherapy" |
| 87. | | Yes | Free 2009 [90] UK | RCT | 97% 195/ 200 | I: mobile phone based on programme in Rodgers 2005 but messages adapted for UK (Quit Buddy, and Text Crave)<br>C: 1 text SMS/fortnight<br>Full study is Free 2011 | TTM | 7-day PPA (*) | 4w<br>6m | 12<br>6.7 | 26<br>8.5 | A 1<br>B 1<br>C 1<br>D 2<br>E 1<br>F 1<br>→Q1 (7) (strong) | Short-term effect only | |
| 88. | | Yes | Gritz 2013 [91] – USA Expanded programme based on Vidrine 2006 | RCT | 76% 362/ 474 | HIV-positive, current smoker from HIV clinics<br>I: Usual care+ a mobile phone-delivered counselling intervention over 3 months and access to a supportive hotline<br>C: Usual care+ an audio computer-assisted self interview +advice to quit | CBT | 7-day PPA<br><br>7-day PPA (*) | 3m<br>6m<br>12m | 3<br>4<br>6 | 14<br>5<br>4 | A 2<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q1 (8) (Strong) | Short term effect only<br>"The treatment effect was strongest at the 3-month follow-up" | "Future research should focus on strategies for sustaining the treatment effect in the long term". |
| 89. | | No | Shelley 2015 [92] – US Recruited from HIV clinics | RCT | 68% 87/127 | I1: Standard care + 2 SMS /day for 12 weeks.<br>I2: standard care, SMS + behavioral therapy delivered via 7 proactive mobile phone-delivered counseling sessions over a 6-week period"<br>C: self help information sheet, tailored to HIV-positive smokers and an offer of varenicline | CBT | 7-day PPA (*) | 12 w | 3.8 | 3.7 | A 1<br>B 1<br>C 1<br>D 3<br>E 1<br>F 2<br>→Q1 (9) (moderate) | "Adherence-related information, self-efficacy, a college degree, and non-Hispanic white race/ethnicity were associated with increased varenicline adherence" | "These associations with adherence were no longer significant after controlling for race/ethnicity and education". |
| | | | | | | **Young smokers** | | | | | | | | |
| 90. | 123 | Yes | Free 2011 [93] - UK | RCT | 90% 5220/ 5800 | **I: a mobile phone text messaging smoking cessation programme (txt2stop),** comprising | TTM | 6m CA (*)<br>7-day PPA | 6m<br>1m | 5<br>12 | 11<br>29 | A 1<br>B 1<br>C 1<br>D 1 | The intervention delivered solely over mobile phone based on programme in Rodgers 2005 | "An independent telephone randomisation system<br>Single blind (except participants)<br>Concealed after assignment" |

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group % | | | |
| 91. | | | | | | motivational messages and behavioural-change support. were received a £20 top-up voucher to participate in the intervention **C: received text messages unrelated to quitting** | | | 6m | 18 | 18 | E 1 F 1 →Q1 (6) (strong) | "The txt2stop smoking cessation programme significantly improved smoking cessation rates at 6 months and should be considered for inclusion in smoking cessation services" | |
| | | | | | | | | 30-day PPA | 6m | 14 | 20 | | | |
| 92. | 154 | Yes | Müssener 2016 [94] - Sweden | RCT | 94% (1502/ 1509) | **I: The NEXit core program** is initiated with a 1- to 4-week motivational phase during which participants can choose to set a stop date. The intervention group then received 157 TXT based on components of effective smoking cessation interventions for 12 weeks. **C: received 1 text every 2 weeks** | TTM | 3m PA | 3m | 15 | 26 | A 1 B 1 C 1 D 1 E 1 F 1 →Q1 (6) (strong) | "The simple NEXit intervention has the potential to improve the uptake of effective smoking cessation interventions" | "Randomization was fully computerized and automated" Single blind (participants awarded of allocation) "(i) reliance on self-reported smoking data, (ii) Recruiting only young adults studying at universities, (iii) do not have long-term follow-up outcomes, thus, should be caution in the interpretation of these secondary outcomes, mindful of the risk of bias." |
| | | | | | | | | 7-day PPA | 3m | 16 | 32 | | | |
| | | | | | | | | 30-day PPA | 3m | 14 | 21 | | | |
| 93. | 56 | No | Shi 2013 [95] - China | Cluster RCT | 68% 122/ 179 | **I: received tailored information via mobile phone text-messaging C: received a self-help pamphlet** about smoking cessation | TTM | 7-day PPA | 1m | 8 | 14 | A 1 B 1 C 2 D 1 E 1 F 2 →Q1 (8) (strong) | Short-term effect only | "- most of the participants were boys - 17% of participants in the intervention group lost to follow up - small sample size |
| | | | | | | | | 30-day PPA | 1m | 7 | 10 | | | |
| 94. | 135 | No | Haug 2013 [96] Switzeland | Cluster RCT | 74% 559/ 755 | **I: received SMS text messaging**. Text messages (SMS-COACH, fully automated and based on Internet technology), tailored to demographic and smoking-related variables, were sent to the participants of the intervention group at least 3 times per week over a period of 3 months **C: assessment only** | TTM | 7-day PPA | 6m | 10 | 13 | A 1 B 1 C 1 D 1 E 2 F 2 →Q1 (8) (strong) | "The intervention did not have statistically significant short-term effects on smoking cessation; however, it resulted in statistically significant lower cigarette consumption" | "- self-reported assessment - only investigated the short-term effects of the program - lack of statistical power, and an attrition bias" |
| | | | | | | | | 30-day PPA | 6m | 6 | 6 | | | |
| 95. | 257 | No | Whittaker 2011 [97] – | RCT | 73% 165/ | **I: received an automated package of** | TTM | 7-day PPA (*) | 1m 3m | 21 22 | 11 27 | A 1 B 1 | No statistically significant effect was found | "(i) most young people were not actually ready to commit to a |

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group % | | | |
| | | | New Zealand | | 256 | **video and text messages** over 6 months that was tailored to self-selected quit date, role model, and timing of messages. **C: set a quit date and received a general health video message** sent to their phone every 2 weeks. | | | 6m | 22 | 23 | C 1<br>D 1<br>E 1<br>F 2<br>→Q1 (7) (strong) | | cessation intervention (ii) the costs of messaging and advanced technology may have proved a barrier for some (iii) plans to incentivize participation were hampered by several factors<br>Participants were not blinded |
| 96. | 171 | Yes | Rodgers 2005 [98] - New Zealand | RCT | 74% 1624/ 1705 | I: received regular, personalised text messages providing smoking cessation advice, support, and distraction,<br>C: only received one text message every two weeks)<br>Pilot study - full trial is Free 2011 | TTM | 7-day PPA | 6w | 28 | 13 | A 3<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q2 (9) (moderate) | "More participants had quit at six weeks in the intervention compared to the control group RR= 2.20 (95% CI 1.79 to 2.70)" | "(i) the over-reporting of quitting status and the comparatively large and differential loss to follow up".<br>"Future research should test these findings in different settings, and provide further assessment of long term quit rates."<br>Single blind (participants not blinded) |
| 97. | 198 | Yes | Ybarra 2013 [99] - USA | RCT | 71% 117/ 164 | **I: the 6-week SMS USA intervention**: 2 weeks of Pre-Quit messages **C: an attention-matched control group** aimed at improving sleep and physical activity. | N/A | 3m CA | 3m | 30 | 40 | A 3<br>B 1<br>C 1<br>D 2<br>E 1<br>F 2<br>→Q2 (10) (moderate) | The SMS USA program affects smoking cessation rates at 4 weeks post-quit. | "(i) small sample size. (ii) it is unclear how young adult smokers recruited on Craigslist (iii), 47 participants could not be included in the ITT analyses."<br>Researchers were not blinded from allocation |
| | | | | | | | | 7-day PPA | 4w | 21 | 39 | | | |
| 98. | 12 | Yes | Bramley 2005 [100] - New Zealand<br><br>Additional paper for Rodgers 2005 | RCT | 72% 1236/ 1705 | **C: SMS 1 time/ month, I: regular, personalized text messages** providing smoking cessation advice, support, and distraction. Maori SMS related to Maori language, support messages (in Maori and English) and information on Maori traditions. | CBT | Smoking cessation among Maori (*) | 6.5m | 11<br>20<br>18 | 26<br>27<br>22 | A 3<br>B 1<br>C 1<br>D 1<br>E 1<br>F 2<br>→Q2 (9) (moderate) | "A mobile phone-based cessation programme was successful in recruiting young Maori, and was shown to be as effective for Maori as non-Maori at increasing short-term self-reported quit rates." | A single-blind RCT<br>A differential loss to follow-up between 2 groups.<br>"Over-reporting of quitting is thought to be more likely in young people7 and was seen here with salivary cotinine validation in a sample of participants" |
| | | | | | | | | Smoking cessation among non-Maori (*) | 6.5m | 13<br>19<br>25 | 29<br>30<br>26 | | | |
| | | | | | | **Other vulnerable smokers** | | | | | | | | |
| 99. | 156 | No | Naughton 2012 [101] - UK | RCT | 84% 174/ 207 | **I: MiQuit**, a tailored self-help leaflet followed by an 11-week program of tailored text messages. **C: non-tailored self-help leaflet** | SCT, Perspectives on Change Theory | 7-day PPA (*) | 3m | 12.5 | 7.8 | A 3<br>B 1<br>C 1<br>D 1<br>E 2<br>F 1<br>→Q2 (9) | There was no statistically significant group difference in self-reported 7-day PPA | "(i) underpowered to detect a group difference on smoking outcomes. (ii) The recruitment pool was unlikely to be representative of the pregnant smoker population. (iii) Bias related to using text messages for collecting outcome |

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group % | | | |
| | | | | | | | | | | | | (moderate) | | data |
| 100. | 44 | No | Naughton 2017 [102] - UK | RCT | 64% 261/ 407 | **I: received MiQuit**, an automated 12-week advice and support programme for quitting smoking in pregnancy delivered by SMS text message + the booklet and usual care<br>**C: usual care**<br>+ a standard NHS booklet on smoking cessation. | SCT, Perspectives on Change Theory | 7-day PPA | 4w<br>36w | 16<br>2 | 18<br>4 | A 3<br>B 1<br>C 1<br>D 1<br>E 2<br>F 2<br>→Q2 (10) (moderate) | "The incremental cost-per-quitter was £133.53 (95% CI -£395.78 to £843.62)."<br>"There was some evidence, though not conclusive, that a text messaging programme may increase cessation rates in pregnant smokers when provided alongside routine NHS cessation care." | "- completeness of follow up and biochemical validation rates were not optimal, potentially reducing statistical power. A further limitation is the unknown generalisability of findings to all pregnant smokers.."<br>Single blind (participant were not blinded)" |
| | | | | | | | | 7-day PPA (*) | 4w<br>36w | 6<br>1 | 7<br>2 | | | |
| 101. | 162 | Yes | Pollak 2013 [103] - USA | RCT | 100% 31/ 31 | **I: provided support messages plus a scheduled gradual reduction (SGR)** to help women reduce their smoking more than 3 weeks, sent women in the SGR arm "alert texts" at times to instruct them to smoke.<br>**C: SMS-delivered support messages** | CBT | 7-day PPA (*) | 3w | 7.5 | 13.4 | A 3<br>B 1<br>C 3<br>D 1<br>E 1<br>F 1<br>→Q3 (10) (weak) | "Women in the SGR arm had a higher rate of biochemically validated 7-day point prevalence at the end of pregnancy 13.4% versus 7.5%." | "3 weeks of reduction is not sufficient for heavier smokers, small sample size" |
| 102. | 192 | Yes | Vidrine 2015 [104] - USA | RCT | 74% 350/ 474 | **I: a cell phone intervention (CPI)**<br>Proactive counselling calls in 12 weeks including: (i) Preparing to quit, Making the commitment to quit; (ii) Quitting smoking—getting through the first day Surviving withdrawal—withdrawal facts and coping skills (iii) Managing high risk situations Stress, negative affect & smoking Improving support and asserting<br>**C: usual care (UC)** | CBT | 7-day PPA (*) | 3m | 5 | 16 | A 1<br>B 1<br>C 2<br>D 1<br>E 1<br>F 2<br>→Q1 (8) (strong) | "The effect of the cell phone intervention on smoking abstinence through change in self-efficacy was statistically significant and accounted for 17% of the total effect of the intervention on abstinence." | "(i) Unable to examine long-term effects<br>(ii) Unable to proceed to multiple mediation analysis.<br>(iii) Attrition bias<br>(iv) The sample's demographic profile (e.g., predominately minority, low income, male) may limit generalizability of the findings.<br>(v) Although prospective data was used, temporal relationships should not be assumed." |
| | 252 | Yes | Vidrine 2006 – USA | RCT | 81% 77/ 95 | **I: cell phone intervention (CPI)** The cellular telephone intervention received eight counselling sessions delivered via | CBT | 24h PPA (*) | 3m | 10 | 37 | A 1<br>B 2<br>C 2<br>D 1<br>E 1<br>F 1 | " Participants who received the intervention were 3.6 times (95% CI, 1.3-9.9) more likely to quit smoking compared with participants who received | "(i) Small sample (ii) the follow-up period was relatively short. (iii) It will be vital to assess the association of phase of HIV disease and smoking status" |
| | | | | | | | | 7-day PPA (*) | 3m | 8 | 21 | | | |

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavior-al theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group % | | | |
| | | | | | | cellular telephone in addition to the usual care components. **C: Usual care** | | | | | | →Q1 (8) (strong) | usual care" | |

# D- Other eHealth interventions

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavioral theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group % | Intervention group% | | | |
| | | | | | | **Social network** | | | | | | | | |
| 103. | 17 | Yes | Cheung 2015 [105]- China | single-blinded, parallel, 3-arm pilot cluster RCT | 74% 100/ 136 | Group A **WhatsApp** reminders to (1) maintain abstinence, (2) the importance of remaining abstinence, (3) prevent smoking triggers, (4) withdrawal symptoms and lapse, (5) stress and mood management, and (6) weight control<br>Group B (**Facebook**): 3 reminders/ week.<br>Group C (control group): self-help booklet and were advised to contact ICSC's counselors | CBT | 7-day PPA | 6m | 15 | 26 (A)<br>25 (B) | A 1<br>B 1<br>C 2<br>D 1<br>E 2<br>F 2<br>→Q1 (9) (strong) | The intervention via the WhatsApp social group was effective in reducing relapse probably because of enhanced discussion and social support.<br>Inactive discussion in the Facebook social group might have attributed to the lower effectiveness | Only be generalizable to recent quitters (mostly male and married)<br>Small sample size<br>No strict concealment of group allocation.<br>The biochemically validated quit rate might be biased" |
| | | | | | | **Video** | | | | | | | | |
| 104. | 189 | No | Tsoh 2010 [106] - USA | RCT | 76% 32/42 | I: Video Doctor + provider cueing to promote provider advice and smoking cessation outcomes in pregnancy. Pregnant women received 15-minute Video Doctor sessions plus provider cueing+ interactive tailored messages<br>C: usual care | Pharmaco therapy | 30-day PPA | 2m | 10.5 | 26.1 | A 1<br>B 1<br>C 1<br>D 2<br>E 2<br>F 2<br>→Q1 (9) (strong) | The intervention yielded a significantly greater decrease in the number of days smoked and in cigarettes smoked per day. However, there was no significant difference on 30-day abstinence between groups | (i) Self-report assessment<br>(ii) small sample size" |
| 105. | 191 | No | Unrod 2007 [107] - USA | RCT | 90% 465/ 518 | I: Patients entered their information directly into a laptop computer and received two copies of expert-system report that characterized the patients' smoking habit<br>C: Usual care | CBT | 7-day PPA | 6m | 8 | 12 | A 3<br>B 1<br>C 1<br>D 2<br>E 2<br>F 2<br>→Q2 (11) (moderate) | Intervention patients were 1.77 (CI 0.94, 3.34, p=0.078) times more likely than controls to be abstinent (12 versus 8%), a difference that approached, but did not reach statistical significance | "A minority of the physicians contacted to participate were enrolled because a large proportion refused participation or could not be reached." |
| 106. | 226 | No | Lawrence 2005 [108] - UK | Cluster RCT | 43% 393/ 918 | Midwives in these practices delivered three interventions: A (standard care), | The RE-AIM ('Reach, Efficacy, | 7-day PPA | 18m | 4.2 | 4.6 | A 1<br>B 1<br>C 2<br>D 2 | There was not significant effect for both TTM arms vs the control.<br>Eighteen (33.3%) of the | The TTM-based interventions may have shown some evidence of a short-term benefit for quitting in pregnancy but no benefit relative |

| # | ID | Effect (Y/N) | Authors -Country | Design | Retention rate (N) | Description of Intervention | Behavioral theory | Outcome | Length of follow up | PPA | | Quality assessment score | Findings | Author's recommendations Limitations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Control group up % | Intervention group% | | | |
| | | | | | | B (TTM-based self-help manuals) and C (TTM-based self-help manuals + sessions with an interactive computer program giving individualized smoking cessation advice). Women worked alone without the midwife using the computer. | Adoption, Implementation, and Maintenance') framework | | | | | E 1<br>F 3<br>→Q2 (10) (moderate) | 54 women who were 10-day postpartum quitters were quit at 18 months postpartum, | to standard care when followed-up in the longer-term.<br>High loss of follow up |

***Abbreviations***: **SR**: self-reported; **BV:** Biochemical validated; **CBT:** Cognitive-behavioral theory; **CI:** Confident Interval; **GP:** general practitioner; **HIV/AIDS:** human immunodeficiency virus infection and acquired immune deficiency syndrome; **mHealth:** mobile phone-based interventions; **N/A:** not available; **NRT:** nicotine replacement therapies; **PPA:** point prevalence abstinence; **RCT:** randomized controlled trial; **RR:** Risk ratio; **SCT:** Social Cognitive Theory; **SMS:** short messaging service; **TTM:** Transtheoretical Model; **US:** The United States

**Quality Assessment Ratings**:

**Q1-STRONG** (no weak ratings), **Q2-MODERATE** (one weak ratings), **Q3-STRONG** (two or more weak ratings)

| | | | | |
|---|---|---|---|---|
| **A** | **Selection bias** | **Strong** | **Moderate** | **Weak** |
| | | 1 | 2 | 3 |
| **B** | **Study design** | **Strong** | **Moderate** | **Weak** |
| | | 1 | 2 | 3 |
| **C** | **Confounders** | **Strong** | **Moderate** | **Weak** |
| | | 1 | 2 | 3 |
| **D** | **Blinding** | **Strong** | **Moderate** | **Weak** |
| | | 1 | 2 | 3 |
| **E** | **Data collection method** | **Strong** | **Moderate** | **Weak** |
| | | 1 | 2 | 3 |

| F | Withdrawals and Dropouts | Strong | Moderate | Weak |
|---|---|---|---|---|
| | | 1 | 2 | 3 |

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