

**Supplementary Material**

**Effectiveness and acceptability of conversational agents for sexual health promotion: a systematic review and meta-analysis**

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## Supplementary Material I: Search Strategy

### PsycINFO (Ovid)

#### #1 Artificial agents

artificial intelligence/ OR  
electronic health services/ OR  
human computer interaction/ OR  
intelligent agents/ OR  
mobile applications/ OR  
mobile health/ OR  
(bot OR  
bots OR  
chat agent\* OR  
chatbot\* OR  
conversation\* agent\* OR  
digital assistant\* OR  
ehealth OR  
mHealth OR  
mobile application\* OR  
mobile health OR  
relational agent\* OR  
virtual agent\* OR  
virtual assistant\* OR  
virtual coach\*).ti,ab,id.

**25.323 hits (February 4, 2021)**

#### #2 Sexual health

AIDS/ OR  
gonorrhea/ OR  
herpes genitalis/ OR  
HIV/ OR  
human papillomavirus/ OR  
sexual health/ OR  
sexually transmitted diseases/ OR  
syphilis/ OR  
(AIDS OR  
gonorrhea OR  
herpes genitalis OR  
HIV OR  
HPV OR  
papillomavirus OR  
sexual health OR  
sexually transmitted disease\* OR  
sexually transmitted infection\* OR  
STD\* OR  
STI OR  
STIs OR  
syphilis OR  
venereal disease\*).ti,ab,id.

**83.081 hits (February 4, 2021)**

**#1 AND #2 = 494 hits** limit to yr 1860-2020 => **492 hits** (February 4, 2021)

### Medline (Ovid)

## **#1 Artificial agents**

artificial intelligence/ OR  
mobile applications/ OR  
user-computer interface/ OR  
(bot OR  
bots OR  
chat agent\* OR  
chatbot\* OR  
conversation\* agent\* OR  
digital assistant\* OR  
ehealth OR  
electronic health service\* OR  
human computer interaction\* OR  
intelligent agent\* OR  
mHealth OR  
mobile application\* OR  
mobile health OR  
relational agent\* OR  
virtual agent\* OR  
virtual assistant\* OR  
virtual coach\*).ti,ab,kf.

**83.474 hits (February 4, 2021)**

## **#2 Sexual health**

Acquired Immunodeficiency Syndrome/ OR  
gonorrhea/ OR  
herpes genitalis/ OR  
HIV/ OR  
papillomavirus infections/ OR  
sexual health/ OR  
sexually transmitted diseases/ OR  
syphilis/ OR  
(Acquired Immunodeficiency Syndrome OR  
AIDS OR  
gonorrhea OR  
herpes genitalis OR  
HIV OR  
HPV OR  
papillomavirus OR  
sexual health OR  
sexually transmitted disease\* OR  
sexually transmitted infection\* OR  
STD\* OR  
STI OR  
STIs OR  
syphilis OR  
venereal disease\*).ti,ab,kf.

**551.825 hits (February 4, 2021)**

**#1 AND #2 = 1.789 hits** limit to yr 1860-2020 => **1.773 hits** (February 4, 2021)

## Embase (Ovid)

### #1 Artificial agents

artificial intelligence/ OR  
mobile applications/ OR  
user-computer interface/ OR  
(bot OR  
bots OR  
chat agent\* OR  
chatbot\* OR  
conversation\* agent\* OR  
digital assistant\* OR  
ehealth OR  
electronic health service\* OR  
human computer interaction\* OR  
intelligent agent\* OR  
mHealth OR  
mobile application\* OR  
mobile health OR  
relational agent\* OR  
virtual agent\* OR  
virtual assistant\* OR  
virtual coach\*).ti,ab,kw.

**80.079 hits (February 4, 2021)**

### #2 Sexual health

Acquired Immunodeficiency Syndrome/ OR  
gonorrhea/ OR  
herpes genitalis/ OR  
HIV/ OR  
papillomavirus infections/ OR  
sexual health/ OR  
sexually transmitted diseases/ OR  
syphilis/ OR  
(Acquired Immunodeficiency Syndrome OR  
AIDS OR  
gonorrhea OR  
herpes genitalis OR  
HIV OR  
HPV OR  
papillomavirus OR  
sexual health OR  
sexually transmitted disease\* OR  
sexually transmitted infection\* OR  
STD\* OR  
STI OR  
STIs OR  
syphilis OR  
venereal disease\*).ti,ab,kw.

**710.643 hits (February 4, 2021)**

**#1 AND #2 = 1.874 hits** limit to Conference abstracts or Embase => **1.218 hits** limit to yr 1883-2020  
=> **1.208 hits** (February 4, 2021)

## Web of Science (Clarivate Analytics)

### #1 Artificial agents

TOPIC: ("bot" OR "bots" OR "chat agent\*" OR chatbot\* OR "conversation agent\*" OR "conversational agent\*" OR "digital assistant\*" OR "ehealth" OR "mHealth" OR "mobile application\*" OR "mobile health" OR "relational agent\*" OR "virtual agent\*" OR "virtual assistant\*" OR "virtual coach\*")

**27.952 hits (February 4, 2021)**

### #2 Sexual health

TOPIC: ("AIDS" OR AIDS NEAR/3 HIV OR AIDS NEAR/5 syndrome OR "gonorrhea" OR "herpes genitalis" OR "HIV" OR "HPV" OR "human immunodeficiency virus" OR papillomavirus OR "sexual health" OR "sexually transmitted disease\*" OR "sexually transmitted infection\*" OR "STD" OR "STDs" OR "STI" OR "STIs" OR "syphilis" OR "venereal disease\*")

**597.626 hits (February 4, 2021)**

**#1 AND #2 = 1.061 hits Timespan 1975-2020 => 1.058 hits (February 4, 2021)**

## ACM Digital Library

Abstract:(((bot OR bots OR "chat agent\*" OR chatbot\* OR "conversation agent\*" OR "conversational agent\*" OR "digital assistant\*" OR ehealth OR mHealth OR "mobile application\*" OR "mobile health" OR "relational agent\*" OR "virtual agent\*" OR "virtual assistant\*" OR "virtual coach\*")) AND (AIDS OR gonorrhea OR "herpes genitalis" OR HIV OR HPV OR "human immunodeficiency virus" OR papillomavirus OR "sexual health" OR "sexually transmitted disease\*" OR "sexually transmitted infection\*" OR STD OR STDs OR STI OR STIs OR syphilis OR "venereal disease\*"))))

**76 hits limit to yr 2003\*-2020 => 76 hits (February 4, 2021)**

## IEEE xplora

### #1 Artificial agents

("All Metadata":agent OR agents OR assistant OR assistants OR bot OR bots OR chatbot\* OR ehealth OR mHealth OR "mobile application" OR "mobile applications" OR "mobile health" OR "virtual coach" OR "virtual coaches")

**106.377 hits (February 4, 2021)**

### #2 Sexual health

("All Metadata":AIDS NEAR/3 HIV OR AIDS NEAR/5 syndrome OR gonorrhea OR herpes OR HIV OR HPV OR "human immunodeficiency virus" OR papillomavirus OR "sexual health" OR "sexually transmitted disease\*" OR "sexually transmitted infection\*" OR STDs OR STI OR STIs OR syphilis OR "venereal disease\*")

**3.456 hits (February 4, 2021)**

**#1 AND #2 = 157 hits limit to yr 1988\*-2020 (February 4, 2021)**

## Communication & Mass Media Complete (Ebsco)

### #1 Artificial agents

AB ( ("bot" OR "bots" OR "chat agent\*" OR chatbot\* OR "conversation agent\*" OR "conversational agent\*" OR "digital assistant\*" OR "ehealth" OR "mHealth" OR "mobile application\*" OR "mobile health" OR "relational agent\*" OR "virtual agent\*" OR "virtual assistant\*" OR "virtual coach\*") ) OR KW ( ("bot" OR "bots" OR "chat agent\*" OR chatbot\* OR "conversation agent\*" OR "conversational agent\*" OR "digital assistant\*" OR "ehealth" OR "mHealth" OR "mobile application\*" OR "mobile health" OR "relational agent\*" OR "virtual agent\*" OR "virtual assistant\*" OR "virtual coach\*") ) OR SU ( ("bot" OR "bots" OR "chat agent\*" OR chatbot\* OR "conversation agent\*" OR "conversational agent\*" OR "digital assistant\*" OR "ehealth" OR "mHealth" OR "mobile application\*" OR "mobile health" OR "relational agent\*" OR "virtual agent\*" OR "virtual assistant\*" OR "virtual coach\*") ) OR TI ( ("bot" OR "bots" OR "chat agent\*" OR chatbot\* OR "conversation agent\*" OR "conversational agent\*" OR "digital assistant\*" OR "ehealth" OR "mHealth" OR "mobile application\*" OR "mobile health" OR "relational agent\*" OR "virtual agent\*" OR "virtual assistant\*" OR "virtual coach\*") )

**997 hits (February 4, 2021)**

### #2 Sexual health

AB ( ("AIDS" OR "gonorrhea" OR "herpes genitalis" OR "HIV" OR "HPV" OR "human immunodeficiency virus" OR papillomavirus OR "sexual health" OR "sexually transmitted disease\*" OR "sexually transmitted infection\*" OR "STD" OR "STDs" OR "STI" OR "STIs" OR "syphilis" OR "venereal disease\*") ) OR KW ( ("AIDS" OR "gonorrhea" OR "herpes genitalis" OR "HIV" OR "HPV" OR "human immunodeficiency virus" OR papillomavirus OR "sexual health" OR "sexually transmitted disease\*" OR "sexually transmitted infection\*" OR "STD" OR "STDs" OR "STI" OR "STIs" OR "syphilis" OR "venereal disease\*") ) OR SU ( ("AIDS" OR "gonorrhea" OR "herpes genitalis" OR "HIV" OR "HPV" OR "human immunodeficiency virus" OR papillomavirus OR "sexual health" OR "sexually transmitted disease\*" OR "sexually transmitted infection\*" OR "STD" OR "STDs" OR "STI" OR "STIs" OR "syphilis" OR "venereal disease\*") ) OR TI ( ("AIDS" OR "gonorrhea" OR "herpes genitalis" OR "HIV" OR "HPV" OR "human immunodeficiency virus" OR papillomavirus OR "sexual health" OR "sexually transmitted disease\*" OR "sexually transmitted infection\*" OR "STD" OR "STDs" OR "STI" OR "STIs" OR "syphilis" OR "venereal disease\*") )

**6.098 hits (February 4, 2021)**

**#1 AND #2 = 15 hits limit to yr 2011\*-2020 => 15 hits (February 4, 2020)**