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Effectiveness and feasibility of online fertility preservation decision aids for young female patients with cancer: a systematic review protocol

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ABSTRACT

Introduction Cancer diagnosis and treatment can impair fertility, and younger female patients with cancer have a particularly strong need for fertility preservation. Fertility preservation decision aids are thought to help patients make proactive and informed treatment decisions. This systematic review aims to assess the effectiveness and feasibility of online fertility preservation decision aids for young female patients with cancer.

Methods and analysis PubMed, Web of Science Core Collection, Embase, The Cochrane Central Register of Controlled Trials, PsycINFO and CHINAL, along with three grey literature sources (Google Scholar, ClinicalTrials.gov and WHO International Clinical Trials Registry Platform), will be searched from each database's establishment to 30 November 2022. Two trained reviewers will independently screen the articles, and the data extraction and methodological quality of eligible randomised controlled trials and quasiexperimental studies will be assessed. A meta-analysis will be performed using Review Manager V.5.4 (Cochrane Collaboration) software, and heterogeneity will be assessed using I² statistics. If a meta-analysis is not possible, a narrative synthesis will be done.

Ethics and dissemination Since this systematic review is based on published data, no ethical approval is required. The study's findings will be disseminated through peer-reviewed publications and conference presentations.

PROSPERO registration number CRD42022363287.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This systematic review aims to provide a comprehensive and systematic summary of the effectiveness and feasibility of online fertility preservation decision aids for young female patients with cancer.
⇒ This protocol is reported according to the Preferred Reporting Items for Systematic review and Meta-Analysis Protocols (2015) guidelines.
⇒ Six databases will be searched with no language restrictions; additionally, searches of Google Scholar, two clinical registry websites and reference lists of potentially relevant studies will also be conducted to ensure no relevant studies are missed.
⇒ The certainty assessment will be performed using the Grading of Recommendations Assessment, Development and Evaluation approach to determine the quality of the evidence.
⇒ This systematic review may be restricted by insufficient high-quality randomised controlled studies, methodological heterogeneity and a limited sample size.

INTRODUCTION

The growing burden of cancer disease has become a major global public health concern. According to the 2019 Global Burden of Disease Report,[1] cancer is the second leading cause of death worldwide, with a 26.3% increase in new cases and a 20.9% increase in deaths over the last decade. Compared with the elderly, adolescents and young adults with cancer are frequently neglected, although their cancer prevalence rate is not encouraging. By 2019, cancer had become the fourth leading cause of death and the tenth leading cause of death in disability-adjusted life years among adolescents and young adults worldwide, and gynaecologic cancers had become the leading problem affecting the physical and mental health of young females, with breast and cervical cancers accounting for 33.6% of their global disability-adjusted life-year burden.[2] Young females are currently in their reproductive years. However, a cancer diagnosis can have severe physical and mental consequences. In the meantime, cancer therapy can have direct and negative effects on a female's reproductive system (eg, ovarian failure, uterine damage), raising the likelihood of female infertility and, in extreme situations, sterility. A population-based study discovered that[3] female cancer survivors had lower pregnancy rates, fewer first pregnancies and fewer frequent pregnancies than the general population. In addition, fertility-related psychological distress and disorders are widespread

among young patients with cancer and persist throughout their survival.[4] Moreover, cancer survivors had considerably elevated symptoms of post-traumatic stress disorder symptoms during pregnancy, poor prenatal attachment and poor quality of life.[5] Thus, the preservation of fertility has become a significant focus in the health management of young female patients with cancer.

In recent years, there has been a huge focus on fertility preservation among female patients with cancer. An extensive systematic review showed that[6] 66%–100% of patients with cancer expressed a need for fertility information, particularly among young, childless patients with reproductive plans. However, due to a lack of fertility knowledge,[7 8] low awareness of fertility preservation,[9] a severe shortage of fertility-related information support services[10] and a vast selection of fertility preservation therapies,[11] it appears to be more challenging for young female patients with cancerto make fertility preservation decisions consistent with their preferences and values in the short period between diagnosis and treatment initiation. The 2018 American Society of Clinical Oncology clinical practice guidelines recommend[12] that healthcare professionals should discuss the feasibility of preserving fertility with female patients with cancer who wish to preserve their fertility as early as possible prior to treatment in order to provide patients with more options. In 2020, the European Society of Human Reproduction and Embryology also suggested[13] that healthcare providers give age-appropriate information and reproductive counselling services about fertility preservation. Information support services for young patients with cancer positively affect decisions regarding fertility preservation.[14 15] However, about half of patients (43%–62%) felt that relevant information was provided inadequately and that their information needs were not addressed.[16] When receiving reproductive counselling, the majority of patients stated an urgent need for more timely, standardised and written information to address specific unmet information needs.[17] The afore-mentioned unmet information needs may have a negative impact on patients' decision-making and lead to huge decisional conflicts, resulting in decisional discomfort and poor fertility preservation-related quality of life.[18] In order to increase the quality of information support services and meet the information needs of patients, it is essential that fertility preservation information support services become more efficient.

Patient decision aids (PtDAs) are evidence-based decision support tools designed to assist patients in making explicit, judicious and informed health decisions about specific healthcare issues by providing comprehensive, systematic and high-quality information about the available health options, the risks and benefits of each option, and personal values. Recent years have seen widespread application of PtDAs in a number of decision-making contexts, including chronic disease management, symptom triage and disease screening. According to research findings, PtDAs can improve patients' health knowledge and risk perception of health options, clarify their values and lessen the sense of making uninformed decisions.[19 20] To address the issue of female patients with cancer making decisions on fertility preservation, relevant guidelines indicate that clinical healthcare professionals provide decision aids to females who are considering fertility preservation.[13] Multiple PtDAs for fertility preservation have been developed with positive original application outcomes, significantly boosting patient understanding of fertility preservation, decreasing decision conflicts and achieving high patient satisfaction overall.[21] However, the dissemination and accessibility of paper-based PtDAs are limited, and more than two-thirds of patients believe that providing online information support prior to fertility preservation decisions helps them prepare for decisions and improves the quality of decisions made with their doctors.[22] Therefore, the internet has become a practical diffusion channel, and online PtDAs have been developed. Several online PtDAs for fertility preservation decisions among young female patients with cancer have been developed. Some results from multiple studies demonstrated varying degrees of effectiveness and feasibility, and the sample size was relatively small, which may have led to some bias in the results.[23–25] There are insufficient systematic reviews that summarise the feasibility and effectiveness of online PtDAs for fertility preservation decision-making support. Thus, two primary research questions guided the systematic review: (a) What is the effectiveness of online fertility preservation decision aids in assisting patient decision-making? (b) What is the feasibility of online fertility preservation decision aids used to support young female patients with cancer in making decisions?

METHODS AND ANALYSIS

This protocol follows the Preferred Reporting Items for Systematic review and Meta-Analysis Protocols (2015) guidelines.[26] There is no unified standard for the age of young female patients with cancer at present, but some researchers define it as ≤40 years.[7 27 28] As a criterion for the recognition of decision-making authority, the chronological age limit of 18 years is acceptable. In this study, the age limits for young female patients with cancer ranged from 18 to 40 years.

Eligibility criteria

This systematic review will be divided into effectiveness and feasibility research on online fertility preservation decision aids. The following inclusion criteria will be applied: (1) intervention studies, including randomised controlled trials and quasiexperimental studies, with no restrictions on race and nationality and language; (2) young female patients with cancer aged 18 to 40 years, and the type of cancer was unrestricted; (3) the interventions were decision support with an online fertility preservation decision aid (phone, website, application, digital health, etc) for the experimental group, and the usual care, counselling only or no intervention for the control group; and (4) any measures of effectiveness (fertility-related knowledge, attitude towards fertility preservation,

decisional conflict and regret, and preparation for decision-making) and feasibility (usability, acceptability, understandability, intervention completion rate, reason for withdrawal, adverse effects events and service satisfaction) of online fertility preservation decision aids among young female patients with cancer will be included. The exclusion criteria are as follows: (1) repeated publications or substudies of included research; (2) unavailability of the full text, conference abstracts or minutes with insufficient information.

Information sources and search strategy

The following databases will be searched: PubMed, Web of Science Core Collection, Embase, The Cochrane Central Register of Controlled Trials, PsycINFO and the CHINAL Database.

We will also search databases or websites for grey literature (Google Scholar, ClinicalTrials.gov and the WHO International Clinical Trials Registry Platform). The retrieval time will span from the database's establishment to 30 November 2022. The following subject heading terms and free words will be used to conduct the search: ('cancer*' OR 'carcinoma*' OR 'tumo?r*' OR 'neoplasm*' OR 'lesion*' OR 'adenoma*' OR 'sarcom*' OR 'malignan*' or 'oncolo*' OR 'metasta*') AND ('fertility preservation' OR 'infertility prevention' OR 'infertility control' OR 'fertility preserv*' OR 'fertility sparing' OR 'fertility saving*' OR ('preserv*' AND 'reproduc*')) AND ('online system' OR 'web' OR 'online' OR 'electronic' OR 'interactiv*' OR 'internet' OR 'digital' OR 'phone' OR 'computer*' OR 'e-media' OR 'tele-education' OR 'multimedia' OR 'telehealth system*') AND ('decision support techniques' OR 'decision aid*' OR 'shared decision making' OR 'decision trees' OR 'informed decision making' OR 'patient decision making' OR 'informed consent' OR 'patient participation' OR 'decision tool*' OR 'decision instrument*' OR 'decision program*' OR 'decision technolog*' OR 'decision method*' OR 'decision material*' OR 'decision analys*' OR 'decision counselling'). The PubMed search strategy is presented in table 1. The trial search coordinator will search the register for each review using the topic list rather than keywords. The detailed research strategy is available in the online supplemental appendix 1.

Data management and selection process

Two trained reviewers (NQ and YK) will independently retrieve article titles and abstracts using EndNote V.20 software. If a relevant article is identified in a language that the reviewers do not understand, we will seek the assistance of language specialists to translate and extract the data. All studies deemed irrelevant will be excluded for specific reasons. Then, NQ and YK will independently assess the eligibility of the selected articles' full texts. If two reviewers have divergent viewpoints, a third experienced reviewer (YD) will arbitrate. Finally, we will retrieve other potentially relevant articles by manually searching the reference lists of the included articles.

Data extraction

NQ and YK will extract data independently using a standardised data extraction form. Each eligible article will have its first author, publication year, publishing nation, study type, participants, sample size, interventions and outcomes (effectiveness and feasibility indicators) collected using a standardised Excel spreadsheet. After data extraction is complete, NQ and YK will perform a cross-check to ensure the data's accuracy. YD shall address any disputes regarding data extraction through negotiation or arbitration. When any relevant information in the included studies is unclear or missing, we will contact the authors of the original studies to request additional information.

Table 1 PubMed search strategy

Search number	Search detail
#1	'Neoplasms' [MeSH Terms] OR 'cancer*' [Title/Abstract] OR 'carcinoma*' [Title/Abstract] OR 'tumo?r*' [Title/Abstract] OR 'neoplas*' [Title/Abstract] OR 'lesion*' [Title/Abstract] OR 'adenoma*' [Title/Abstract] OR 'sarcom*' [Title/Abstract] OR 'malignan*' [Title/Abstract] OR 'oncolo*' [Title/Abstract] OR 'metasta*' [Title/Abstract]
#2	'Fertility Preservation' [MeSH Terms] OR 'infertility prevention' Title/Abstract] OR 'infertility control' [Title/Abstract] OR 'fertility preserv*' [Title/Abstract] OR 'fertility sparing' [Title/Abstract] OR 'fertility saving*' [Title/Abstract] OR ('preserv*' [Title/Abstract] AND 'reproduc*' [Title/Abstract])
#3	'online systems' [MeSH Terms] OR 'web' [Title/Abstract] OR 'online' [Title/Abstract] OR 'electronic' [Title/Abstract] OR 'interactiv*' [Title/Abstract] OR 'internet' [Title/Abstract] OR 'digital' [Title/Abstract] OR 'phone' [Title/Abstract] OR 'computer*' [Title/Abstract] OR 'e-media' [Title/Abstract] OR 'tele-education' [Title/Abstract] OR 'multimedia' [Title/Abstract] OR 'telehealth system*' [Title/Abstract]
#4	'Decision Support Techniques' [MeSH Terms] OR 'decision aid*' [Title/Abstract] OR 'shared decision making' [Title/Abstract] OR 'decision trees' [Title/Abstract] OR 'informed decision making' [Title/Abstract] OR 'patient decision making' [Title/Abstract] OR 'informed consent' [Title/Abstract] OR 'patient participation' [Title/Abstract] OR 'decision tool*' [Title/Abstract] OR 'decision instrument*' [Title/Abstract] OR 'decision program*' [Title/Abstract] OR 'decision technolog*' [Title/Abstract] OR 'decision method*' [Title/Abstract] OR 'decision material*' [Title/Abstract] OR 'decision analys*' [Title/Abstract] OR 'decision counselling' [Title/Abstract]
#5	#1 AND #2 AND #3 AND #4

Study risk-of-bias assessment

The revised Cochrane risk-of-bias tool V.2 (RoB2) for randomised trials will be used to assess the methodological quality and risk of bias of the included randomised controlled studies.[29] RoB2 addresses five domains of bias: randomisation, deviations from intended interventions, missing outcome data, outcome measurement and selection of reported results. Each domain contained a number of signalling questions, each with five possible responses: yes (Y), probably yes (PY), probably no (PN), no (N) and no information (NI). According to the assessment of the signalling questions, the risk of bias in each domain will be classified into three categories: low risk, some concerns and high risk. In conjunction with the results of the risk-of-bias judgements for each domain, the overall risk of bias can be classified as low risk of bias, some concerns or high risk of bias. The Risk Of Bias In Non-randomized Studies of Interventions tool will be used to assess the methodological quality and risk of bias of the included quasiexperimental studies.[30] This tool proposes evaluating the risk of bias in seven domains: preintervention confounding, participant selection, intervention classification during the intervention, deviation from the intended intervention, missing data, outcome measurements and selection of reported results. There were a few signalling questions with five possible responses for each domain (Y, PY, N, PN and NI). Low risk of bias, moderate risk of bias, serious risk of bias, critical risk of bias or no information will be assigned to each of the seven domains. Finally, the assessment of the overall risk of bias can be classified into the same five levels as the evaluation of each domain. Two trained reviewers (NQ and YK) will independently assess the methodological quality of the included articles. After the quality assessment is complete, NQ and YK will cross-check each other. YD will address any disagreements in the bias evaluation through discussion or arbitration until consensus is reached.

Effect measures

For continuous outcomes, we will use the mean difference (MD) with 95% confidence intervals (CIs) when the same outcome was measured using the same method and the standard mean difference (SMD) with 95% CIs when the same outcome was evaluated using different methods. For dichotomous outcomes, the intervention effect will be estimated using a risk ratio (RR) or an OR with 95% CIs. For studies with more than two studies, we will select the most relevant pair of interventions. For cluster-randomised trials, we will adjust the sample size using an estimate of the intracluster correlation coefficient (ICC) derived from the trial. If information is missing, we will email the author for more information. If the ICC cannot be determined, we will rely on estimates derived from other included studies or relevant empirical research. Regarding any incomplete information, we will contact the authors for clarification.

Synthesis methods

All statistical analyses will be conducted using Review Manager Software (RevMan V.5.4). Among randomised controlled and quasiexperimental studies (studies without a control group will be excluded), we will conduct a meta-analysis comparing the intervention to the control group. We will use the MD or SMD to analyse continuous variables and the OR or RR to analyse categorical variables, along with 95% CIs and corresponding p values. The I^2 test will be used to evaluate the heterogeneity of the included studies. The combined data will be analysed using a fixed effects model in cases where it is reasonable to assume that studies with the same intervention, similar participants and similar methods are comparable. If $I^2>50\%$ or $p<0.1$, heterogeneity will be considered significant. In this situation, a random effects model will be applied. If significant heterogeneity is identified, subgroup analyses will be conducted to determine whether an overall summary is meaningful. In the affirmative, a random effects model will be applied. The sensitivity analysis will explore the differences between random effects and fixed effects models. Additionally, we will conduct a sensitivity analysis that excludes studies with a high risk of bias. Meta-analysis will only be done if there is sufficient homogeneity in outcomes between at least two studies, and narrative synthesis will be done when meta-analysis is not possible for an outcome due to heterogeneity or poor methodological quality.

Reporting bias assessment

If 10 or more studies evaluate a specific outcome, the reporting bias will be evaluated using Egger's test and funnel plots. If the funnel plot appears asymmetric, we will do exploratory analyses to determine why. Several explanations may account for funnel plot asymmetry, including various trial sizes, poor methodological design and publication bias.

Certainty assessment

We will evaluate the overall certainty of the evidence using the Grading of Recommendations Assessment, Development and Evaluation approach. Two steps will be taken: first, the study design will be used to assess the quality of the evidence, followed by a discussion of five factors (risk of bias, inconsistency, indirectness, imprecision and publication bias) for downgrading the quality of the evidence.[31] There are four levels of evidence quality: high, moderate, low and very low. NQ and YK will independently assess the certainty of the evidence for each outcome using a standardised checklist. After completing the certainty assessment, NQ and YK will conduct a cross-check. YD will resolve any disputes through discussion or arbitration.

Patient and public involvement

None.

ETHICS AND DISSEMINATION

Since this systematic review is based on published data, no ethical approval is required. The study's findings will be disseminated through peer-reviewed publications and conference presentations.

Contributors All authors have contributed to the protocol. NQ and ZW developed this research question and wrote the original draft. YK and YD designed the search strategy and identified the search resources. YD, JX and ASKC edited the final version of the manuscript and designed the extraction data sheet.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

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Supplementary appendix

PubMed search strategy

#1

"Neoplasms"[MeSH Terms] OR "cancer*"[Title/Abstract] OR "carcinoma*"[Title/Abstract] OR "tumo?r*"[Title/Abstract] OR "neoplas*"[Title/Abstract] OR "lesion*"[Title/Abstract] OR "adenoma*"[Title/Abstract] OR "sarcom*"[Title/Abstract] OR "malignan*"[Title/Abstract] OR "oncolo*"[Title/Abstract] OR "metasta*"[Title/Abstract]

#2

"Fertility Preservation"[MeSH Terms] OR "infertility prevention"[Title/Abstract] OR "infertility control"[Title/Abstract] OR "fertility preserv*"[Title/Abstract] OR "fertility sparing"[Title/Abstract] OR "fertility saving*"[Title/Abstract] OR ("preserv*"[Title/Abstract] AND "reproduc*"[Title/Abstract])

#3

"online systems"[MeSH Terms] OR "web"[Title/Abstract] OR "online"[Title/Abstract] OR "electronic"[Title/Abstract] OR "interactiv*"[Title/Abstract] OR "internet"[Title/Abstract] OR "digital"[Title/Abstract] OR "phone"[Title/Abstract] OR "computer*"[Title/Abstract] OR “e-media” [Title/Abstract] OR “tele-education” [Title/Abstract] OR “multimedia” [Title/Abstract] OR “telehealth system*” [Title/Abstract]

#4

"Decision Support Techniques"[MeSH Terms] OR "decision aid*"[Title/Abstract] OR "shared decision making"[Title/Abstract] OR "decision trees"[Title/Abstract] OR "informed decision making"[Title/Abstract] OR "patient decision making"[Title/Abstract] OR "informed consent"[Title/Abstract] OR "patient participation"[Title/Abstract] OR "decision tool*"[Title/Abstract] OR "decision instrument*"[Title/Abstract] OR "decision program*"[Title/Abstract] OR "decision technolog*"[Title/Abstract] OR "decision method*"[Title/Abstract] OR "decision material*"[Title/Abstract] OR "decision analys*"[Title/Abstract] OR "decision counselling"[Title/Abstract]

#5

#1 AND #2 AND #3 AND #4 (humans [Filter]) AND (female [Filter])

Web of Science Core Collection search strategy

#1

TS=(cancer*) OR TS=(carcinoma*) OR TS= (tumor*) OR TS=(neoplas*) OR TS=(lesion*) OR TS=(adenoma*) OR TS=(sarcom*) OR TS=(malignan*) OR TS=(oncolo*) OR TS=(metasta*)

#2

TS= (infertility prevention) OR TS= (infertility control) OR TS= (fertility preserv*) OR TS= (fertility sparing) OR TS= (fertility saving*) OR (TS=(preserv*) AND TS=(reproduc*))

#3

TS= (web) OR TS= (online) OR TS=(electronic) OR TS= (interactiv*) OR TS= (internet) OR TS= (digital) OR TS=(phone) OR TS=(computer*) OR TS=(e-media) OR TS=(tele-education) OR TS= (multimedia) OR TS= (telehealth system*)

#4

TS= (Decision Support Techniques) OR TS= (decision aid*) OR TS= (shared decision making) OR TS= (decision trees) OR TS= (informed decision making) OR TS= (patient decision making) OR

TS= (informed consent) OR TS= (patient participation) OR TS= (decision tool*) OR TS= (decision instrument*) OR TS= (decision program*) OR TS= (decision technolog*) OR TS= (decision method*) OR TS= (decision material*) OR TS= (decision analys*) OR TS= (decision counselling)

#5

#1 AND #2 AND #3 AND #4 AND (humans [Mesh Term]) AND (Female [Mesh Term]

Embase search strategy

#1

'neoplasm'/exp OR 'cancer*':ab,kw,ti OR 'carcinoma*':ab,kw,ti OR 'tumo?r*':ab,kw,ti OR 'neoplas*':ab,kw,ti OR 'lesion*':ab,kw,ti OR 'adenoma*':ab,kw,ti OR 'sarcom*':ab,kw,ti OR 'malignan*':ab,kw,ti OR 'oncolo*':ab,kw,ti OR 'metasta*':ab,kw,ti

#2

'Fertility Preservation'/exp OR 'infertility prevention':ab,kw,ti OR 'infertility control':ab,kw,ti OR 'fertility preserv*':ab,kw,ti OR 'fertility sparing':ab,kw,ti OR 'fertility saving*':ab,kw,ti OR ('preserv*':ab,kw,ti AND 'reproduc*':ab,kw,ti)

#3

'online systems'/exp OR ' web ':ab,kw,ti OR ' online ':ab,kw,ti OR ' electronic ':ab,kw,ti OR ' interactiv* ':ab,kw,ti OR ' internet ':ab,kw,ti OR ' digital ':ab,kw,ti OR ' phone ':ab,kw,ti OR ' computer* ':ab,kw,ti OR ' e-media ':ab,kw,ti OR ' tele-education ':ab,kw,ti OR ' multimedia ':ab,kw,ti OR ' telehealth system* ':ab,kw,ti

#4

'decision support system'/exp OR ' decision aid* ':ab,kw,ti OR ' shared decision making ':ab,kw,ti OR ' decision trees ':ab,kw,ti OR ' informed decision making ':ab,kw,ti OR ' patient decision making ':ab,kw,ti OR ' informed consent ':ab,kw,ti OR ' patient participation ':ab,kw,ti OR ' decision tool* ':ab,kw,ti OR ' decision instrument* ':ab,kw,ti OR ' decision program* ':ab,kw,ti OR ' decision technolog*':ab,kw,ti OR ' decision method* ':ab,kw,ti OR ' decision material* ':ab,kw,ti OR ' decision analys* ':ab,kw,ti OR ' decision counselling ':ab,kw,ti

#5

#1 AND #2 AND #3 AND #4 AND ([article]/lim OR [article in press]/lim OR [data papers]/lim) AND [female]/lim AND [humans]/lim AND [clinical study]/lim AND [embase]/lim

The Cochrane Central Register of Controlled Trials (CENTRAL) search strategy

#1

MeSH descriptor: [Neoplasms] explode all trees

#2

(cancer*):ab,kw,ti OR (carcinoma*):ti,ab,kw OR (tumo?r*):ti,ab,kw OR (neoplas*):ti,ab,kw OR (lesion*):ti,ab,kw OR

#3

(adenoma*):ti,ab,kw OR (sarcom*):ti,ab,kw OR (malignan*):ti,ab,kw OR (oncolo*):ti,ab,kw OR (metasta*):ti,ab,kw

#4

#1 OR #2 OR #3

#5

MeSH descriptor: [Fertility Preservation] explode all trees

#6
(infertility prevention):ab,kw,ti OR (infertility control):ab,kw,ti OR (fertility preserv*):ab,kw,ti OR (fertility sparing)':ab,kw,ti OR (fertility saving*):ab,kw,ti
#7
('preserv*):ab,kw,ti AND (reproduc*):ab,kw,ti
#8
#5 OR #6 OR #7
#9
MeSH descriptor: [online systems] explode all trees
#10
(web):ab,kw,ti OR (online):ab,kw,ti OR (electronic):ab,kw,ti OR (interactiv*):ab,kw,ti OR (internet):ab,kw,ti
#11
(digital):ab,kw,ti OR (phone):ab,kw,ti OR (computer*):ab,kw,ti OR(e-media):ab,kw,ti OR (tele-education):ab,kw,ti
#12
(multimedia):ab,kw,ti OR (telehealth system*):ab,kw,ti
#13
#9 OR #10 OR #11 OR #12
#14
MeSH descriptor: [Decision Support Systems, Management] explode all trees
#15
MeSH descriptor: [Decision Support Systems, Clinical] explode all trees
#16
(decision aid*):ab,kw,ti OR (shared decision making) :ab,kw,ti OR (decision trees):ab,kw,ti OR (informed decision making):ab,kw,ti OR (patient decision making):ab,kw,ti
#17
(informed consent):ab,kw,ti OR (patient participation):ab,kw,ti OR (decision tool*):ab,kw,ti OR (decision instrument*):ab,kw,ti OR (decision program*):ab,kw,ti
#18
(decision technolog*):ab,kw,ti OR (decision method*):ab,kw,ti OR (decision material*):ab,kw,ti OR (decision analys*):ab,kw,ti OR (decision counselling):ab,kw,ti
#19
#14 OR #15 OR #16 OR #17 OR #18
#20
#4 AND #8 AND #13 AND #19 in Trials

PsycINFO search strategy
#1
(DE "Neoplasms") OR (SU cancer*) OR (TI cancer*) OR (AB cancer*) OR (SU carcinoma*) OR (TI carcinoma*) OR (AB carcinoma*) OR (SU tumo?r*) OR (TI tumo?r*) OR (AB tumo?r*) OR (SU neoplas*) OR (TI neoplas*) OR (AB neoplas*) OR (SU lesion*) OR (TI lesion*) OR (AB lesion*) OR (SU adenoma*) OR (TI adenoma*) OR (AB adenoma*) OR (SU sarcom*) OR (TI sarcom*) OR (AB sarcom*) OR (SU malignan*) OR (TI malignan*) OR (AB malignan*) OR (SU

oncolo*) OR (TI oncolo*) OR (AB oncolo*) OR (SU metasta*) OR (TI metasta*) OR (AB metasta*)

#2

(MH "Fertility Preservation") OR (SU infertility prevention) OR (TI infertility prevention) OR (AB infertility prevention) OR (SU infertility control) OR (TI infertility control) OR (AB infertility control) OR (SU fertility preserv*) OR (TI fertility preserv*) OR (AB fertility preserv*) OR (SU fertility sparing) OR (TI fertility sparing) OR (AB fertility sparing) OR (SU fertility saving*) OR (TI fertility saving*) OR (AB fertility saving*) OR (SU preserv*) OR (TI preserv*) OR (AB preserv*) OR (SU reproduc*) OR (TI reproduc*) OR (AB reproduc*)

#3

DE "Online Therapy" OR (SU web) OR (TI web) OR (AB web) OR (SU online) OR (TI online) OR (AB online) OR (SU electronic) OR (TI electronic) OR (AB electronic) OR (SU interactiv*) OR (TI interactiv*) OR (AB interactiv*) OR (SU internet) OR (TI internet) OR (AB internet) OR (SU digital) OR (TI digital) OR (AB digital) OR (SU phone) OR (TI phone) OR (AB phone) OR (SU computer*) OR (TI computer*) OR (AB computer*) OR (SU e-media) OR (TI e-media) OR (AB e-media) OR (SU tele-education) OR (TI tele-education) OR (AB tele-education) OR (SU multimedia) OR (TI multimedia) OR (AB multimedia) OR (SU telehealth system*) OR (TI telehealth system*) OR (AB telehealth system*)

#4

(DE "Decision Support Systems") OR (SU decision aid*) OR (TI decision aid*) OR (AB decision aid*) OR (SU shared decision making) OR (TI shared decision making) OR (AB shared decision making) OR (SU decision trees) OR (TI decision trees) OR (AB decision trees) OR (SU informed decision making) OR (TI informed decision making) OR (AB informed decision making) OR (SU patient decision making) OR (TI patient decision making) OR (AB patient decision making) OR (SU informed consent) OR (TI informed consent) OR (AB informed consent) OR (SU decision tool*) OR (TI decision tool*) OR (AB decision tool*) OR (SU patient participation) OR (TI patient participation) OR (AB patient participation) OR (SU decision instrument*) OR (TI decision instrument*) OR (AB decision instrument*) OR (SU decision program*) OR (TI decision program*) OR (AB decision program*) OR (SU decision technolog*) OR (TI decision technolog*) OR (AB decision technolog*) OR (SU decision method*) OR (TI decision method*) OR (AB decision method*) OR (SU decision material*) OR (TI decision material*) OR (AB decision material*) OR (SU decision analys*) OR (TI decision analys*) OR (AB decision analys*) OR (SU decision counselling) OR (TI decision counselling) OR (AB decision counselling)

#5

#1 AND #2 AND #3 AND #4

Limiters - Population Group: Female; Methodology: CLINICAL TRIAL

CHINAL Database search strategy

#1

(MH "Neoplasms+") OR (SU cancer*) OR (TI cancer*) OR (AB cancer*) OR (SU carcinoma*) OR (TI carcinoma*) OR (AB carcinoma*) OR (SU tumo?r*) OR (TI tumo?r*) OR (AB tumo?r*) OR (SU neoplas*) OR (TI neoplas*) OR (AB neoplas*) OR (SU lesion*) OR (TI lesion*) OR (AB lesion*) OR (SU adenoma*) OR (TI adenoma*) OR (AB adenoma*) OR (SU sarcom*) OR (TI sarcom*) OR (AB sarcom*) OR (SU malignan*) OR (TI malignan*) OR (AB malignan*) OR (SU oncolo*) OR (TI oncolo*) OR (AB oncolo*) OR (SU metasta*) OR (TI metasta*) OR (AB metasta*)

#2

(DE "Fertility Enhancement") OR (SU infertility prevention) OR (TI infertility prevention) OR (AB infertility prevention) OR (SU infertility control) OR (TI infertility control) OR (AB infertility control) OR (SU fertility preserv*) OR (TI fertility preserv*) OR (AB fertility preserv*) OR (SU fertility sparing) OR (TI fertility sparing) OR (AB fertility sparing) OR (SU fertility saving*) OR (TI fertility saving*) OR (AB fertility saving*) OR (SU preserv*) OR (TI preserv*) OR (AB preserv*) OR (SU reproduc*) OR (TI reproduc*) OR (AB reproduc*)

#3

(MH "Online Systems+") OR (SU web) OR (TI web) OR (AB web) OR (SU online) OR (TI online) OR (AB online) OR (SU electronic) OR (TI electronic) OR (AB electronic) OR (SU interactiv*) OR (TI interactiv*) OR (AB interactiv*) OR (SU internet) OR (TI internet) OR (AB internet) OR (SU digital) OR (TI digital) OR (AB digital) OR (SU phone) OR (TI phone) OR (AB phone) OR (SU computer*) OR (TI computer*) OR (AB computer*) OR (SU e-media) OR (TI e-media) OR (AB e-media) OR (SU tele-education) OR (TI tele-education) OR (AB tele-education) OR (SU multimedia) OR (TI multimedia) OR (AB multimedia) OR (SU telehealth system*) OR (TI telehealth system*) OR (AB telehealth system*)

#4

(MH "Decision Support Systems, Clinical") OR (MH "Decision Support Systems, Management") OR (SU decision aid*) OR (TI decision aid*) OR (AB decision aid*) OR (SU shared decision making) OR (TI shared decision making) OR (AB shared decision making) OR (SU decision trees) OR (TI decision trees) OR (AB decision trees) OR (SU informed decision making) OR (TI informed decision making) OR (AB informed decision making) OR (SU patient decision making) OR (TI patient decision making) OR (AB patient decision making) OR (SU informed consent) OR (TI informed consent) OR (AB informed consent) OR (SU decision tool*) OR (TI decision tool*) OR (AB decision tool*) OR (SU patient participation) OR (TI patient participation) OR (AB patient participation) OR (SU decision instrument*) OR (TI decision instrument*) OR (AB decision instrument*) OR (SU decision program*) OR (TI decision program*) OR (AB decision program*) OR (SU decision technolog*) OR (TI decision technolog*) OR (AB decision technolog*) OR (SU decision method*) OR (TI decision method*) OR (AB decision method*) OR (SU decision material*) OR (TI decision material*) OR (AB decision material*) OR (SU decision analys*) OR (TI decision analys*) OR (AB decision analys*) OR (SU decision counselling) OR (TI decision counselling) OR (AB decision counselling)

#5

#1 AND #2 AND #3 AND #4

Limiters - Population Group: Female

Google Scholar search strategy

intitle: ((((cancer OR carcinoma OR tumor OR neoplasm OR lesion OR adenoma OR sarcoma OR malignant or oncology OR metatag) AND (fertility preservation OR infertility prevention OR infertility control OR fertility preserve OR fertility sparing OR fertility saving OR preserving reproduction)) AND (online OR web OR electronic OR interactive OR internet OR digital OR phone OR computer OR e-media OR tele-education OR multimedia OR telehealth system)) AND (decision support techniques OR decision aid OR shared decision making OR decision trees OR informed decision making OR patient decision making OR informed consent OR patient

participation OR decision tool OR decision instrument OR decision program OR decision technology OR decision method OR decision material OR decision analysis OR decision counselling))

ClinicalTrials.gov search strategy

Available, Completed Studies | Studies With Results | Interventional Studies | Cancer | online decision making | Studies with Female Participants

the WHO International Clinical Trials Registry Platform search strategy

Cancer in the title AND fertility preservation in the Condition AND with results only