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Supplementary Table 2. Effects of medicinal plants, formulations, and compounds on psychological disorders before and after surgery

Medicinal plants				
Plants scientific names	Time/Dose/Type of administration (Intervention group)	Type of psychological disorder	Outcomes	References
<i>Lavandula officinalis</i> Mill	2 drops of lavandula oil (0.1 cc per drop with 100% concentration) was rubbed on a handkerchief and inhaled by the patient for 20 minute.	Anxiety	Reduced anxiety in preoperative patients	(30)
<i>Lavandula angustifolia</i> Mill.	Patients inhaled essential oil aroma of the herb for 60 seconds, then patient's nose was shortly massaged with the extract	Anxiety	There was relationship between lavender oil components and antioxidants in alleviating preoperative anxiety in patients	(31)
<i>Lavandula angustifolia</i> Mill.	2 drops of oil, either 2% <i>Lavandula Angustifolia</i> oil, inside a plastic oxygen face mask for 10 minutes.	Anxiety	Aromatherapy with lavender fleur oil treatments decreased anxiety prior to breast surgery.	(32)
<i>Lavandula angustifolia</i> Mill.	2 drops of 1% plant essential oil and pure water on gauze pad and the patients inhale for 5 minutes.	Anxiety	Reduced anxiety of patients undergoing surgery.	(33)
<i>Lavandula angustifolia</i> Mill.	1-2 drops of scent blend containing lavender essential oil fixed at a 10 cm distance from the patients' nose. The patient was asked to breathe slowly for 20 minutes.	Anxiety	Aromatherapy with lavender oil reduced anxiety in patients submitted to post chest tube removal and coronary artery bypass grafting	(34)
<i>Lavandula angustifolia</i> Mill.	A gauze bandage with 3 to 4 drops of lavender oil (one drop 0.1 mL in concentration of 100%) for a 20-minute inhalation on the day of the surgery.	Anxiety	Inhalation lavender oil before breast surgery decreased anxiety level in patients	(35)
<i>Lavandula officinalis</i> Mill	Initiation of preoperative order sets every 15 minutes till surgery time.	Anxiety	Aromatherapy with lavender, was beneficial in reducing anxiety in females undergoing breast surgery	(36)
<i>Lavandula officinalis</i> Mill	Plant oil were initially spread in the operation waiting room	Anxiety	Reduced preoperative anxiety levels of patients undergoing plastic surgery and relaxed them.	(37)
<i>Lavandula officinalis</i> Mill	Patients received aromatherapy for a	Anxiety	Preoperative lavender aromatherapy reduced	(38)

	minimum of 30 minutes		anxiety rate in the ambulatory surgery setting	
<i>Lavandula hybrida</i> E.Rev. ex Briq	Back massage using 5% lavender oil for 10 minutes before surgery	Anxiety	Aromatherapy massage with lavender oil reduced the level of preoperative anxiety in patients with colorectal surgery	(39)
<i>Lavandula officinalis</i> Mill	On the second and third days after surgery, patients inhaled two drops of 2% lavender oil in alcohol from an absorbable sticky patch inside an oxygen mask for 20 minutes.	Stress	Inhaled <i>lavender</i> oil had no significant effects on mental stress in patients undergoing coronary artery bypass surgery	(40)
<i>Passiflora incarnata</i> L.	30 min before spinal anesthesia 700 mg/5 ml of aqueous extract.	Anxiety	Reduced anxiety levels of patients before spinal anesthesia	(41)
<i>Valeriana officinalis</i> L.	Single oral dose of 100 mg of Valerian prescribed 1 hour before surgical procedure.	Anxiety	Reduced anxiety in patients undergoing to impacted lower third molar surgery	(42)
<i>Valeriana officinalis</i> L.	Preoperative patients received <i>V. officinalis</i> root extract capsules containing 530 mg of it, every 12 hour. Intake of the valerian began 1 day before the surgery and continued 60 days after the surgery.	Cognitive dysfunction	Prophylactic treatment with the plant cans prevention of cognitive dysfunction after coronary artery bypass graft surgery.	(43)
<i>Passiflora incarnate</i> L.	<i>Passiflora incarnata</i> was prescribed 1000 mg nature made at the time of entering the operating room, before receiving drugs, one hour after receiving the drugs, before induction and before discharge	Anxiety	Premedication with <i>Passiflora incarnata</i> reduces anxiety on postoperative cognitive disorders in adult patients undergoing elective surgery.	(44)
<i>Passiflora incarnate</i> L.	260 mg of <i>Passiflora incarnata</i> (1 pill) administered orally 30 minutes in the preoperative procedure	Anxiety	Alleviated anxiety and was safe in adult patients who underwent extraction of their mandibular third molars.	(45)
<i>Citrus aurantium</i> L.	10 cc (2 g) of plant essence on daily basis was prescribed. Essence was solved in water and the cases received the solution as one dose within a period starting from after launch to two hours before dinner.	Anxiety	Edible plant essence mitigating preoperative anxiety in Patients Candidate for Coronary Artery Implantation	(46)
<i>Crocus sativus</i> L	15 mg doses twice per day from 2 days before the coronary artery bypass grafting surgery up to 12 weeks afterward	Anxiety, cognition and depression	There was no benefits of saffron in treatment of coronary artery bypass grafting related neuropsychiatric conditions	(47)
<i>Melissa officinalis</i> L.	500-mg capsule (dried	Anxiety	Reduce the levels of anxiety in	(48)

	leaves) 3 times a day for 7 days		patients undergoing coronary artery bypass surgery	
<i>Citrus reticulata</i> Blanco	Massage was carried out with mandarin 1% in carrier oil. A single 10-minutes massage session was applied.	Distress	Massage with or without mandarin oil after major craniofacial surgery in young postoperative patients was not effective	(49)
<i>Citrus bergamia</i> Risso	In the preparation room, patients were exposed to bergamot essential oil aromatherapy	Anxiety	Aromatherapy caused reduction in preoperative anxiety in patients awaiting ambulatory surgery	(39)
<i>Rosa damascena</i> Mill	Ten drops of rose water extract in concentration of 12%, after rubbing the palms of the hands, in a distance of 5-5 / 2 cm in the nose for three minutes	Anxiety	Aromatherapy with rose had positive effect on anxiety reduction in the patient 8 and 16 hours after the general surgery (cholecystectomy).	(50)
<i>Rosa damascena</i> Mill	10 mL of a mixture of 98 mL distilled water/ethyl alcohol, and 2 mL rose oil were placed on the aroma diffuser and applied 15 min before going to the operating room	Anxiety	Aromatherapy with rose reduces preoperative anxiety in preoperative otorhinolaryngology	(51)
<i>Rosa damascena</i> Mill.	Patients' inhaled 3 drops of 4% rose essential oil for ten minutes one night and 1 hour before surgery.	Anxiety	Rose essential oil could not significantly reduce anxiety in patients awaiting coronary artery bypass graft	(52)
Medicinal plants formulations				
Herbal formula	Time / Dose / Type of administration (Intervention group)	Type of psychological disorder	Outcomes	References
Hochu-ekki-to (TJ-41) composed of <i>Astragali Radix</i> , <i>Atractyloclis Lanceae</i> Rhizoma, <i>Ginseng Radix</i> , <i>Angelicae Radix</i> , <i>Bupleuri Radix</i> , <i>izyphi Fructus</i> , <i>Auranti Nobilis Pericarpium</i> , <i>Glycyrrhizae Radix</i> , <i>Cimicifugae Rhizoma</i> and <i>Gingiberis Rhizoma</i>	7.5 g of TJ-41 water extract every day for 7 days before operation	Stress	Prevented surgical stress-induced Immunosuppression via inhibited the elevation of stress mediators and increased NK cell activity	(53)
TJ-54 (Yokukansan) composed of <i>Atractylodes lancea</i> rhizoma, <i>Poria sclerotium</i> , <i>Cnidium rizoma</i> , Japanese <i>Angelica radix</i> , <i>Bupleurum radix</i> , <i>lycyrrhiza radix</i> , and <i>Uncaria thorn</i>	On postoperative day 109 at a dose of 5 g daily. 12 days later, the patient began to eat again. Dosage was increased to 7.5 g daily on postoperative day 132. After 154 day, patient taking 7.5 g yokukansan	Aggressive and impulsive behavior	Reduced aggressive and impulsive behavior after traumatic brain injury	(54)
TJ-54 (Yokukansan)	5 hour before surgery the patients were given	Anxiety	In comparison with diazepam, alleviated preoperative	(55)

	2.5 g orally.		anxiety without undesirable sedation	
TJ-54 (Yokukansan)	The extract was orally administered 3 times a day (2.5 g each time, 7.5 g/day)	Delirium	Reduced incidence of postoperative delirium in gastrointestinal and lung malignancy patients	(56)
TJ-54 (Yokukansan)	7.5 g in 3 times a day from the day of admission until the day of discharge.	Delirium	It had no beneficial effect on the postoperative delirium after pancreatic surgery.	(57)
TJ-54 (Yokukansan)	Patients received 7.5 g/day between day 7 before surgery and day 4 after surgery, except for the operation day	Delirium	Any changes were not observed in postoperative delirium after treatment in patients following surgery for gastrointestinal or lung malignancy,	(58)
TJ-54 (Yokukansan)	Extract was administered 3 times a day (2.5 g each time, 7.5 g/day)	Delirium	Reduced the incidence of postoperative delirium in gastrointestinal and lung malignancy	(59)
TJ-54 (Yokukansan)	2 days before surgery, administered 7.5 g orally.	Delirium and anxiety	Reduced preoperative anxiety and postoperative delirium in colorectal cancer patients	(60)
TJ-54 (Yokukansan)	One packet of the study drug is given orally three times a day (The treatment period is specified as 4 days or longer prior to the surgery)	Delirium and anxiety	Prevented and treated preoperative anxiety and postoperative delirium in cancer patients undergoing high invasive surgery	(61)
Unscented oil derived from sunflower seed oil and safflower seed oil; evening primrose oil; and jojoba oil, <i>Glycine soja</i> (soybean) oil, and tocopherol	2 drops of oil, either 2% plants oil, inside a plastic oxygen face mask for 10 minutes	Anxiety	Aromatherapy with plants oil treatments decreased anxiety prior to breast surgery.	(32)
Medicinal plants compounds				
Herbal compounds/derivatives	Time / Dose / Type of administration (Intervention group)	Type of psychological disorder	Outcomes	References
ω -6 PUFA derived from soy bean	Patients were fed by emulsion (total parenteral nutrition), which provided 1.5 g of protein and 40 kcal per kilogram per day, from 7 day before surgery to postoperative day (POD) 14.	Stress	Moreover it can reduce the inflammatory response and suppresses cell-mediated immune function due to stress, it can amplifies the stress responses	(62)
Gastrodin derived from <i>Gastrodia elata</i> Blume	40 mg/kg in 50 mL saline or saline (50 mL) infused intravenously with a pump over 45 min	Cognitive decline	Decreased the appearance of postoperative neurocognitive decline in patients undergoing mitral valve replacement operation	(63)