

Supplementary 2. The Change of Topics of International Pain Management Nursing Research according to Degree Centrality over Time

Rank	2004~05	2006~07	2008~09	2010~11	2012~13	2014~15	2016~17
1	patient	patient	patient	patient	patient	patient	pain
2	pain	pain	pain	pain	pain	pain	patient
3	care	RNs	care	care	RNs	care	pain management
4	RNs	care	RNs	RNs	care	RNs	assessment
5	assessment	treatment	assessment	assessment	treatment	assessment	care
6	treatment	pain management	treatment	treatment	assessment	treatment	RNs
7	pain management	assessment	pain management	children	pain management	pain management	intervention
8	symptom	management	children	pain management	children	children	treatment
9	intervention	hospice palliative care	hospice palliative care	symptom	clinic	clinic	clinic
10	nursing care	children	symptom	hospice palliative care	symptom	management	management
11	clinic	symptom	management	clinic	hospice palliative care	intervention	hospital
12	cancer	hospital	cancer	cancer	cancer	female	analgesia
13	opioid analgesia	nursing care	clinic	intervention	management	symptom	surgery
14	hospice palliative care	intervention	opioid analgesia	management	support	health	children
15	measurement	measurement	measurement	need	intervention	measurement	health
16	management	cancer	intervention	measurement	health	hospice palliative care	female
17	need	research	need	female	measurement	education	opioid analgesia
18	children	analgesia	evaluation	hospital	need	cancer	chronic pain
19	family	clinic	score	opioid analgesia	female	analgesia	nursing care
20	development	opioid analgesia	health	health	hospital	hospital	education
21	hospital	support	analgesia	support	evaluation	nursing care	need
22	female	need	hospital	pain relief	person	pain relief	measurement
23	pain relief	development	development	nursing care	score	evaluation	evaluation
24	analgesia	family	nursing care	evaluation	nursing care	need	development
25	research	education	QOL	development	opioid analgesia	support	postoperative
26	score	postoperative	research	surgery	analgesia	chronic pain	support
27	evaluation	evaluation	pain relief	chronic pain	chronic pain	postoperative	symptom
28	chronic pain	surgery	education	person	surgery	knowledge	pain relief
29	surgery	pain relief	support	analgesia	family	development	knowledge
30	support	person	person	QOL	education	surgery	score
31	strategy	health	knowledge	family	therapy	opioid analgesia	hospice palliative care
32	therapy	female	chronic pain	factor	participant	participant	person
33	postoperative	score	surgery	medical	development	anxiety	therapy
34	home	scale	scale	research	knowledge	score	participant
35	depression	home	female	postoperative	QOL	family	<i>neonate</i>
36	resident	chronic pain	postoperative	participant	pain relief	factor	acute pain
37	health	knowledge	factor	education	<i>function</i>	health care professionals	satisfaction
38	education	older adults	health care professionals	score	research	administration	adult
39	<i>staff</i>	health care professionals	family	therapy	postoperative	research	cancer
40	participant	cancer pain	therapy	knowledge	<i>communication</i>	medical	intensity
41	medical	therapy	participant	scale	parent	QOL	emergency room
42	knowledge	participant	information	older adults	caregiver	scale	resident
43	person	QOL	<i>relationship</i>	information	anxiety	person	research
44	intensity	caregiver	<i>fatigue</i>	home	scale	emergency room	<i>performance</i>
45	satisfaction	medication	intensity	caregiver	depression	satisfaction	medication

Supplementary 2. Continued

Rank	2004~05	2006~07	2008~09	2010~11	2012~13	2014~15	2016~17
46	physical	information	satisfaction	<i>survey</i>	information	parent	strategy
47	information	depression	cancer pain	<i>quality</i>	health care professionals	therapy	scale
48	anxiety	<i>illness</i>	<i>behavior</i>	physicians	factor	home	medical
49	administration	emergency room	adult	parent	physical	strategy	health care professionals
50	physicians	medical	depression	administration	<i>perception</i>	<i>individual</i>	home

Bold letters in 2016~2017 are keywords ranked higher than previous years. Italic letters are keywords that appear only in that period.
QOL=Quality of life; RNs=Registered nurses.