Supplemental Table 1. Cross-sectional studies of symptom clusters in samples of patients who received chemotherapy

Author, year, purpose and design	Sample size, patient characteristics, time of symptom assessment	Symptom assessment instrument(s); number of symptoms on instrument; statistical analysis method; symptom dimension(s) used to create symptom clusters; analysis of additional outcomes	Number of symptom clusters, specific symptoms within each cluster Evaluation of additional outcomes	Strengths and Limitations
Chen et al., 2021	<i>n</i> = 132	Instrument(s): Chinese version of the	4 symptom clusters identified:	Strengths:
Purpose(s):	Mean age: 39.2 (±13) years	Condensed MSAS: 14		Evaluated for
Identify the	Range: NR	symptoms	Psychological cluster:	associations between
symptom clusters of			feeling nervous,	symptom cluster factor
adult patients with	Female: 58.3%	Criteria used to	worrying, feeling sad	scores and other
acute leukemia		exclude symptoms:		patient reported
undergoing	Ethnicity: NR	Yes	Nutrition-impaired	outcomes
chemotherapy			<u>cluster</u> : weight loss,	
	Race: NR	<u>Analysis</u> : PCA	nausea, lack of	Evaluated for
Analyze the			appetite, shortness of	symptom clusters in
relationship between	Employment status:	Dimension(s):	breath, feeling	patients with
the symptom	Working 27.3%	Distress	drowsy, difficulty	hematologic cancers
clusters and	Not working 72.7%		concentrating	
functional		Symptoms allowed to		Used a valid and
performance and	Inpatients: $n = 132$	load on more than one	Pain-fatigue-sleep	reliable symptom
QOL	Outpatients: <i>n</i> = 0	<u>factor</u> : No	cluster: pain, lack of	inventory
			energy, difficulty	
Design: cross-	Diagnosis:	Minimum factor	sleeping	Limitations:
sectional	AML 53.0%	loadings required to		
	ALL 47.0%	Include symptom within	Dry mouth-	Cross-sectional study
Location: China	The star suit	<u>ciuster</u> : 0.40	constipation cluster:	aesign
			constipation, dry	
	CTX 100.0%		mouth	

		Method of evaluating		Relatively small
	Time of symptom assessment:	for stability of	Additional outcomes:	sample size
	Not specified	symptoms across	ADL score was	
		symptom dimensions	negatively correlated	Lack of consistent
		and/or timepoints: NA	with the	timepoint for symptom
			psvchological.	assessment
		Analysis of secondary	nutrition-impaired,	
		outcomes:	and pain-fatigue-	Recruited patients
		Functional	sleep symptom	from only one hospital
		performance status	clusters	
		assessed with the		Used only a single
		Barthel ADL Index	Total QOL score was	dimension to evaluate
			negatively correlated	for symptom clusters
		QOL assessed with the	with the	
		FACT-Leukemia	psychological,	
		version 4	nutrition-impaired,	
			and pain-fatique-	
			sleep symptom	
			clusters	
Cherwin &	<i>n</i> = 105	Instrument(s):	6 symptom clusters	Strengths:
Perkhounkova, 2017		MSAS (modified): 41	identified:	
	Mean age: 56.7 (±15.3) years	symptoms; 30 clinically		Used symptom
Purpose(s):	Range: 18-86 years	relevant symptoms	Image cluster: image	distress to create
Describe GI		used in the analysis	change, skin change	symptom clusters
symptom clusters	Female: 43.8%			
based on symptom		Criteria used to	Fatigue cluster:	Evaluated for
distress using a GI	Ethnicity:	exclude symptoms:	feeling drowsy, lack	associations between
comprehensive	Non-Hispanic or Latino 95.2%	Yes	of energy, shortness	symptom cluster factor
symptom	Hispanic or Latino 1.0%		of breath, feeling	scores and other
assessment	Missing 3.8%	<u>Analysis</u> : EFA	dizzy	patient reported
				outcomes
Explore how	Race:	Dimension(s): distress	Emotions cluster:	
distress-based GI	White 96.2%		difficulty	Evaluated symptom
symptom clusters	Black or African American 1.0%	Symptoms allowed to	concentrating, feeling	clusters in patients
impact symptom	Asian 1.0%	load on more than one	nervous, feeling sad,	with types of
	America Indian or Alaskan Native	factor: No	_	hematologic cancers

interference with	1.0%		hair loss, swelling of	
daily life and QOL	Missing 1.6%	Minimum factor	arms or legs	Used a valid and
		loadings required to	<b>J</b>	reliable symptom
Design: cross-	Employment status: NR	include symptom within	Bloating cluster:	inventory
sectional		cluster: NR	belching, feeling	
	Inpatients: NR		bloated, diaphoresis	Limitations:
Location: United	Outpatients: NR	Method of evaluating		
States		for stability of	Worry cluster:	Cross-sectional
	Diagnosis:	symptoms across	worrying, numbness	design
	Lymphoma 83.8%	symptom dimensions		0
	Leukemia 10.5%	and/or timepoints: NR	Appetite cluster: lack	Relatively small
	Leukemia & lymphoma 3.8%		of appetite, nausea,	sample size
	Myelodysplastic syndrome 1.9%	Analysis of additional	taste changes	·
		outcomes:	5	Primarily a non-
	Type of treatment:	Symptom Interference	Additional outcomes:	Hispanic, Caucasian
	Standard CTX 88.6%	Subscale of the MDASI	Compared to no	sample
	Reduced CTX 11.4%		distress, patients with	•
		Fox Simple QOL Scale	mild or greater than	Used only a single
	Time of symptom assessment:	•	mild bloating	dimension to evaluate
	Dav 7 of CTX		symptom distress	for symptom clusters
	, , , , , , , , , , , , , , , , , , ,		scores were	5 1
			significantly more	
			likely to report	
			greater symptom	
			interference	
			Relationship between	
			appetite symptom	
			distress scores and	
			symptom interference	
			was moderated by	
			CTX emetogenicity	
			Compared to no	
			distress patients with	
			greater than mild	

			appetite symptom	
			distress scores were	
			significantly more	
			likely to report lower	
			QOL	
Chongkham-ang, et	n = 322	Instrument(s): Thai-	4 symptom clusters	Strengths:
al., 2018		MSAS: 32 symptoms	identified using	
	Mean age: 52.0 (±9.2) years		severity:	Recruited patients
Purpose(s):	Range: 41-60 years	Criteria used to	-	from eight different
Evaluate the		exclude symptoms:	Emotion-related	hospitals
occurrence,	Female: 100.0%	Yes	cluster: worrying,	
frequency, severity,			feeling sad, feeling	Relatively large
and distress of	Ethnicity:	Analysis: PCA	nervous, feeling	sample size
multiple symptoms	Thai 100.0%		irritable, difficulty	
in Thai women with		<u>Dimension(s)</u> : severity,	sleeping, difficulty	Utilized a valid and
breast cancer	Race: NR	distress	concentrating, feeling	reliable symptom
receiving CTX			drowsy, sweats	assessment
	Employment status:	Symptoms allowed to		instrument
Evaluate for	Farmers 28.9%	load on more than one	<u>GI and energy</u>	
similarities in		<u>factor</u> : No	related cluster:	Symptom clusters
symptom clusters	Inpatients: <i>n</i> = 0		nausea, vomiting,	were created using
that were identified	Outpatients: <i>n</i> = 322	Minimum factor	difficulty swallowing,	two dimensions of the
based on ratings of		loadings required to	feeling bloated,	symptom experience
severity and distress	Diagnosis: Breast cancer = 100.0%	include symptom within	dizziness, lack of	
		<u>cluster</u> : 0.40	energy, shortness of	Limitations:
<u>Design</u> : cross-	Type of treatment:		breath, lack of	
sectional	CTX 100.0%	Method of evaluating	appetite	Cross-sectional
		<u>for stability of</u>		design
Location: Thailand	Time of symptom assessment:	symptoms across	Image and nutrition	
	Day 7 after CTX	symptom dimensions	related cluster:	Recruited outpatients
		<u>and/or timepoints</u> : Yes	changes in skin, hair	from only one region
			loss, "I don't look like	(Northern Thailand)
		Analysis of additional	myself," mouth sores,	
		outcomes: N/A	change in the way	
			food tastes, weight	

	loss, constipation, dry	
	mouth	
	Pain and discomfort	
	<u>related cluster</u> : pain,	
	numbness/tingling in	
	hands/feet, itching,	
	problems with	
	urination, cough	
	4 symptom clusters	
	identified using	
	symptom distress:	
	<u>Emotion, energy, and</u>	
	<u>pain related cluster</u> :	
	worrying, feeling sad,	
	feeling nervous,	
	difficulty sleeping,	
	feeling irritable,	
	difficulty	
	concentrating, lack of	
	energy, feeling	
	drowsy, pain,	
	numbness/tingling in	
	hands/feet, shortness	
	of breath, sweats	
	GI related cluster:	
	nausea, vomiting,	
	difficulty swallowing,	
	lack of appetite,	
	dizziness	
	Image related cluster:	
	"I don't look like	

			myself," changes in	
			skin, hair loss	
			Discomfort, nutrition,	
			and elimination	
			related cluster:	
			itching mouth sores	
			constination dry	
			mouth problems with	
			urination weight loss	
			cough feeling	
			bloated change in	
			the way food tastes	
			the way lood tastes	
			Evaluation of	
			additional outcomos:	
			N/A	
Hap at al. 2010	n = 220	Instrument(a);	N/A	Strongther
Harret al., 2019	11 - 559	MSAS (modified): 28	4 symptom clusters	<u>Strengtris</u> .
	Maan age: EZ 0 (111.9) veere	WSAS (modilied). 38		Symptom alustors
Purpose(s).	Denge: ND	symptoms	dimension	Symptom clusters
Describe the	Range: NR		dimension:	were created using
occurrence,		Criteria used to		multiple dimensions of
severity, and	Female: 45.1%	exclude symptoms:	Occurrence symptom	the symptom
distress of 38		Yes	ciusters	experience
symptoms	Ethnicity and Race:		Psychological cluster:	
	White 68.7%	<u>Analysis</u> : EFA	lack of energy,	Evaluated symptom
Identify whether the	Black 9.0%		difficulty	clusters in patients
number and types of	Asian or Pacific Islander 11.5%	Dimension(s):	concentrating, feeling	with types of
symptom clusters	Hispanic, Mixed, or other 10.8%	occurrence, severity,	nervous, feeling	gastrointestinal
differed based on		distress	drowsy, feeling sad,	cancers
the symptom	Employment status:		worrying, feeling	
dimensions used to	Working 33.3%	Symptoms allowed to	irritable, changes in	Utilized a valid and
create the clusters	Not working 66.7%	load on more than one	skin	reliable symptom
		<u>factor</u> : Yes		inventory
Design: cross-	Inpatients: <i>n</i> = 0		CTX-related cluster:	
sectional	Outpatients: <i>n</i> = 399		dry mouth, nausea,	Limitations:

		Minimum factor	itching lock of	
La antinua, Lluita d	Diamagia		itering, lack of	Orace easting al
Location: United	Diagnosis:	loadings required to	appetite, weight loss,	Cross-sectional
States	Colon 46.4%	Include symptom within	change in the way	design
	Rectal 20.1%	<u>cluster</u> : 0.40	food tastes, changes	
	Pancreatic 18.5%		in skin, dizziness	Heterogeneity in types
	Esophageal 5.3%	Method of evaluating		of GI cancers
	Gastric 4.8%	for stability of	GI cluster: feeling	
	Gallbladder/bile duct 2.5%	symptoms across	bloated, abdominal	
	Liver 1 5%	symptom dimensions	cramps constipation	
	Small intestine 1.5%	and/or timepoints. Yes		
	Anal 1.3%		Weight change	
	Other 6.3%	Analysis of additional	cluster: Increased	
		Analysis of additional	appotito woight gain	
	Treatment:	Outcomes. N/A	appelle, weight gain	
	Adjuster CTV 01 EV			
	Adjuvant CTX 91.5%		Severily symptom	
	Neoadjuvant CTX 8.5%		ciusters	
			Psychological cluster:	
	Time of symptom assessment:		lack of energy,	
	Within 7 days prior to start of 2 <sup>nd</sup> or		difficulty	
	3 <sup>rd</sup> cycle of CTX		concentrating, feeling	
			nervous, feeling	
			drowsy, feeling sad,	
			worrving, feeling	
			irritable problems	
			with sexual interest	
			or activity	
			or activity	
			CTV related eluster	
			<u>CTX-Telated Cluster</u> .	
			dizziness, weight	
			loss, lack of appetite,	
			itching, hair loss,	
			change in the way	
			food tastes, "I don't	
			look like myself,"	
			changes in skin	
			-	

	<u>GI cluster</u> : nausea, feeling bloated, diarrhea, abdominal	
	cramps	
	Weight change	
	appetite, weight gain	
	Distress symptom clusters	
	<u>Psychological cluster</u> : difficulty	
	concentrating, feeling nervous, feeling sad,	
	worrying, feeling irritable lack of	
	energy, feeling	
	sleeping, pain, sweats	
	<u>CTX-related cluster</u> : dizziness, change in the way food tastes, lack of appetite,	
	weight loss, itching, "I don't look like myself," changes in skin, hair loss	
	<u>Weight change</u> <u>cluster</u> : increased appetite, weight gain	

			GI cluster: diarrhea,	
			abdominal cramps	
			Additional outcomes:	
			N/A	
Li et al., 2019	Total sample: <i>n</i> = 339	Instrument(s):	8 symptom clusters	Strengths:
	CTX Group: <i>n</i> = 111	Breast Cancer	identified within the	
Purpose(s):	No CTX Group: <i>n</i> = 228	Prevention Trial	CTX Group:	Utilized valid and
Examine and		Symptom Checklist: 42		reliable symptom
compare the	Mean age:	symptoms	Cognitive cluster:	inventories
differences in	Total sample: 61.2 (±6.2) years	Profile of Mood States:	difficulty	
symptoms and	CTX Group: 59.3 (±5.5) years	2 symptoms (i.e.,	concentrating, easily	Compared differences
symptom clusters	No CTX Group: 62.1 (6.3) years	fatigue, anxiety)	distracted,	in the severity of
between	Range: NR	Brief Pain Inventory: 1	forgetfulness,	symptom clusters
postmenopausal		symptom	perceived cognitive	between women who
women with early	Female: 100.0%	Beck Depression		did or did not receive
stage breast cancer		Inventory-II: 2	<u>Musculoskeletal</u>	CTX prior to
who did and did not	Ethnicity: NR	symptoms (i.e.,	<u>cluster</u> : joint pain,	aromatase inhibitor
receive		depression, changes in	general aches,	therapy
chemotherapy prior	Race:	sleep pattern)	muscle stiffness,	
to aromatase	White 96.5%	Patient's Assessment	general pain	Limitations:
inhibitor therapy	Black 3.5%	of Own Functioning: 1		
		symptom	Psychological cluster:	Cross-sectional
<u>Design</u> : cross-	Employment status:		depression, anxiety,	design
sectional	Working 70.4%	<u>Criteria used to</u>	fatigue, avoidance of	
	Not working 29.6%	exclude symptoms:	social affairs	Primarily a Caucasian
Location: United		Yes		sample
States	Inpatients: NR		<u>Urinary cluster</u> :	
	Outpatients: NR	<u>Analysis</u> : EFA	difficulty with bladder	Used a single
			control when	dimension to evaluate
	Diagnosis:	<u>Dimension(s)</u> : severity	laughing or crying,	for symptom clusters
	Breast cancer 100.0%		difficulty with bladder	
		Symptoms allowed to	control at other times	Relatively small
	I reatment:	load on more than one		sample size for the
	CTX 32.7%	<u>factor</u> : No		group that received
	No CTX 67.3			CTX (Group 1)

	Minimum factor	Vasomotor cluster:	
Time of symptom assessment:	loadings required to	hot flashes, night	
After completion of CTX but prior	include symptom within	sweats	
to start of aromatase inhibitory	cluster: 0.40		
therapy	<u></u> . • • • • •	Sexual cluster: pain	
anorapy	Method of evaluating	with intercourse	
	for stability of	vaginal dryness	
	symptoms across	vaginar aryneee	
	symptom dimensions	GL cluster: diarrhea	
	and/or timenoints: N/A	nausea	
		nausea	
	Analysis of additional	Weight cluster	
	outcomes: N/A	weight loss	
		decreased appetite	
		accioacca appente	
		7 symptom clusters	
		identified within the	
		No CTX Group	
		Cognitive cluster:	
		difficulty	
		concentrating easily	
		distracted	
		forgetfulness	
		perceived cognitive	
		Musculoskeletal	
		cluster: joint pain	
		deneral aches	
		muscle stiffness	
		deneral pain swelling	
		of hands or feet	
		Psychological cluster	
		depression anxiety	
		fatigue, avoidance of	

Matzka et al., 2018       n = 304       Instrument(s):       4 symptom clusters			1		
Image:				social affairs, change	
Matzka et al., 2018       n = 304       Instrument(s):       4 symptom clusters				in sleep pattern	
Matzka et al., 2018       n = 304         Matzka et al., 2018       n = 304         Matzka et al., 2018       n = 304				<u>Urinary cluster</u> : difficulty with bladder control when laughing or crying, difficulty with bladder control at other times	
Sexual cluster: pain with intercourse, vaginal dryness         Weight cluster: weight loss, decreased appetite         Additional outcomes: N/A         Matzka et al., 2018       n = 304				<u>Vasomotor cluster</u> : hot flashes, night sweats	
Matzka et al., 2018       n = 304         Matzka et al., 2018       n = 304				<u>Sexual cluster</u> : pain with intercourse, vaginal dryness	
Additional outcomes:       N/A       Matzka et al., 2018     n = 304       Instrument(s):     4 symptom clusters				<u>Weight cluster</u> : weight loss, decreased appetite	
Matzka et al., 2018   n = 304   Instrument(s): 4 symptom clusters   Strengths:				<u>Additional outcomes</u> : N/A	
	Matzka et al., 2018	<i>n</i> = 304	Instrument(s):	4 symptom clusters	<u>Strengths</u> :
Burnose(s): Mean age: 57.4 (+14.5) years Symptom Checklist: 30	Purpose(s):	Mean age: 57 4 $(+14.5)$ years	Symptom Checklist: 30	identified:	Lised symptom
Identify symptom Range: 18-88 years symptom Symptom Checklist. 30 Fatigue and pain distress to create	Identify symptom	Range: 18-88 years	symptoms	Fatique and pain	distress to create
clusters in patients	clusters in patients		-1	cluster: tiredness.	symptom clusters
with cancer Female: 59.0% Criteria used to lack of energy, low	with cancer	Female: 59.0%	Criteria used to	lack of energy, low	
undergoing       exclude symptoms: NR       back pain, sore       Evaluated for	undergoing		exclude symptoms: NR	back pain, sore	Evaluated for
treatment Ethnicity: NR muscles, shortness associations between	treatment	Ethnicity: NR		muscles, shortness	associations between
Analysis: EFA of breath, depressed mean summated	Investigated which	Base: NB	Anaiysis: EFA	of breath, depressed	mean summated
of the symptom symptom scores for	of the symptom		Dimension(s): distress		each symptom cluster
clusters explained Employment status: NR	clusters explained	Employment status: NR			

most of the variation		Symptoms allowed to	Anxiety and	and other patient
in QOL in patients	Inpatients: NR	load on more than one	depression cluster:	reported outcomes
with cancer	Outpatients: NR	factor: Yes	despairing about the	
undergoing			future, anxiety,	Utilized a valid and
treatment while	Diagnosis:	Minimum factor	worrying,	reliable symptom
accounting for	Lymphoid, hematopoietic, and	loadings required to	nervousness,	inventory
psychosocial	related tissue 26.0%	include symptom within	tension, depressed	
resources	Breast 21.1%	<u>cluster</u> : NR	mood, irritability	Limitations:
	Digestive organs 17.8%			
Design: cross-	Female genital organs 9.0%	Method of evaluating	Nausea and vomiting	Cross-sectional
sectional	Respiratory and intrathoracic	for stability of	<u>cluster</u> : nausea,	design
	organs 6.0%	symptoms across	vomiting, lack of	
Location: Austria	Others 20.1%	symptom dimensions	appetite	Recruited patients
		and/or timepoints: N/A		from a single medical
	Type of treatment:		<u>Cancer therapy-</u>	center
	CTX 75.0%	Analysis of additional	related toxicity	
	Chemo-radiation 25.0%	outcomes:	<u>cluster</u> : Sore	Symptom clusters
		German – Connor-	mouth/pain when	were created using a
	Time of symptom assessment:	Davidson Resilience	swallowing, tingling	single dimension of
	NR	Scale	hands or feet, loss of	the symptom
			hair, burning/sore	experience
		Multidimensional Scale	eyes, difficulty	
		of Perceived Social	concentrating, dry	Timing of symptom
		Support	mouth	assessments were not
				specified
		ISO	Additional outcomes:	
			The fatigue and pain,	Heterogeneity in the
			nausea and vomiting,	types of cancer
			and cancer therapy-	diagnoses included in
			related symptom	analysis
			clusters were each	
			negatively associated	Used only a single
			with overall QOL	aimension to evaluate
			A	for symptom clusters
			Among patients with	
			low ISO scores, the	

		1	1	1
			nausea and vomiting	
			and cancer therapy-	
			related toxicity	
			clusters were	
			negatively associated	
			with overall QOL	
			Among natients with	
			medium TSO scores	
			the anxiety and	
			depression and	
			nausea and vomiting	
			clusters were	
			negatively associated	
			with overall QOL	
			Among patients with	
			high TSO scores, the	
			fatigue and pain and	
			cancer therapy-	
			related toxicity	
			clusters were	
			negatively associated	
	(000		with overall QOL	
Papachristou et al.,	n = 1328	Instrument(s):	6 symptom clusters	Strengths:
2019		MSAS (modified): 38	identified using	Or many target a la set a ma
	Mean age: 57.2 (±12.4) years	symptoms	symptom occurrence:	Symptom clusters
Purpose(s):	Range: NR	Critoria used to	Dovebalagical eluctory	were created using
Evaluate the	Econolo: 77 70/	<u>Criteria used to</u>	difficulty cleaning	the symptom
		Voc	worrying fooling and	avporioneo
Network Analysis	Pace or Ethnicity:	105	feeling irritable	experience
INCLIVUIT AIIAIYSIS	White 69.5%	Analysis: Network	feeling nervous	I Itilized a valid and
Explore if network	Non-white 30 5%	analysis	difficulty	reliable symptom
structures for			concentrating lack of	inventory
occurrence	Employment status:			

ters
1 4 ! -
naivtic
,
al
in types

	swelling of arms or	
	legs, pain,	
	numbness/tingling in	
	hands/feet, problems	
	with urination	
	5 symptom clusters	
	identified using	
	symptom severity:	
	Psychological cluster:	
	difficulty sleeping,	
	worrying, feeling sad,	
	feeling irritable,	
	feeling nervous,	
	difficulty	
	concentrating, lack of	
	energy, feeling	
	drowsy, problems	
	with sexual	
	interest/activity	
	<u>Hormonal cluster</u> :	
	sweats, hot flashes	
	Respiratory cluster:	
	shortness of breath,	
	difficulty breathing,	
	cough, chest	
	tightness	
	Nutritional cluster:	
	weight gain, weight	
	loss, increased	
	appetite, nausea,	

	vomiting, lack of	
	appetite	
	CTX-related cluster:	
	itching, hair loss,	
	changes in skin. I	
	don't look like myself	
	change in the way	
	food tastes mouth	
	sores difficulty	
	swallowing dry	
	mouth dizziness	
	constination swelling	
	of arms or leas	
	problems with	
	problems with	
	abdominal cramps,	
	numbness/tingling in	
	nands/feet, pain,	
	feeling bloated	
	7 symptom clusters	
	identified using	
	symptom distress:	
	Psychological cluster:	
	difficulty sleeping,	
	worrying, feeling sad,	
	feeling irritable,	
	feeling nervous,	
	difficulty	
	concentrating,	
	problems with sexual	
	interest/activity	

	<u>Hormonal cluster</u> : sweats, hot flashes	
	<u>Respiratory cluster</u> : shortness of breath, difficulty breathing, cough, chest tightness	
	<u>Nutritional cluster</u> : weight gain, weight loss, increased appetite, nausea, vomiting, lack of appetite, change in way food tastes	
	<u>CTX-related cluster</u> : mouth sores, difficulty swallowing, dry mouth, dizziness, constipation, swelling of arms or legs, problems with urination, numbness/tingling in hands/feet, pain, lack of energy, feeling drawow	
	<u>GI cluster</u> : diarrhea, abdominal cramps, constipation, feeling bloated	

			Epithelial cluster: hair	
			loss I don't look like	
			myself itching skin	
			changes	
			onanges	
			Additional outcomes:	
			N/A	
Pozzar et al 2021	n = 232	Instrument(s):	5 symptom clusters	Strengths:
	11 - 232	MSAS (modified): 28	identified across	<u>Stiengtils</u> .
	Moop age: 50.6 $(\pm 12.7)$ vears	works (modified). 50	ach symptom	Symptom clusters
<u>Puipose(s)</u> . Describe ratings of	Pango: NP	symptoms	dimonsion:	Symptom clusters
	Range. NR	Critoria used to		were created using
Symptom	$\Gamma_{\text{omploy}} = 100.0\%$	<u>Criteria used to</u>	Occurrence eventem	the exemptor
occurrence,		<u>exclude symptoms</u> .	oluctoro	avpariance
distroop for 29	Ethnicity and Daga	res		experience
			HOIMONAL Cluster.	
symptoms in a	VVIIIe 77.1%	Analysis: EFA	sweats, not hasnes,	Evaluated symptom
sample of patients	Black 3.5%		problems with sexual	clusters in patients
with gynecological	Asian or Pacific Islander 8.8%	<u>Dimension(s)</u> :	Interest or activity,	with gynecological
cancer receiving	Hispanic, Mixed, or other 10.6%	occurrence, severity,	abdominal cramps,	cancers
CIX		distress	amiculty	
	Employment status:		concentrating, feeling	Utilized a valid and
Identify and	Working 31.0%	Symptoms allowed to	irritable, feeling	reliable symptom
compare the	Not working 69.0%	load on more than one	drowsy, pain, feeling	inventory
number and types of		factor: Yes	bloated	
symptom clusters	Inpatients: <i>n</i> = 0			Limitations:
identified using	Outpatients: <i>n</i> = 232	Minimum factor	Respiratory cluster:	
these ratings		loadings required to	difficulty breathing,	Cross-sectional
	Diagnosis:	include symptom within	shortness of breath,	design
<u>Design</u> : cross-	Ovarian/fallopian tube/primary	<u>cluster</u> : 0.30	pain, cough, dry	
sectional	peritoneal 65.4%		mouth,	Heterogeneity in types
	Uterine (including endometrial)	Method of evaluating	numbness/tingling in	of gynecological
Location: United	32.9%	for stability of	hands/feet, feeling	cancers
States	Other 5.7%	symptoms across	bloated, dizziness,	
		symptom dimensions	difficulty sleeping	
	Treatment:	and/or timepoints:		
	Adjuvant CTX 100.0%			

	Kirkova and Walsh.	Psychological cluster:	
Time of symptom assessment:	2007	worrving, hair loss.	
Within 7 days prior to start of 2 <sup>nd</sup> or		feeling sad. "I don't	
3 <sup>rd</sup> cvcle of CTX	Analysis of additional	look like myself".	
	outcomes: N/A	changes in skin	
		weight loss change	
		in the way food	
		tastes itching lack of	
		annetite dizziness	
		feeling irritable	
		feeling nervous	
		leeling hervous	
		GL cluster: diarrhea	
		<u>of cluster</u> . diarriea,	
		constinution sweats	
		itching bot flashes	
		itening, not hasnes	
		Weight change	
		cluster: weight gain	
		increased appetite	
		lack of appetite	
		weight loss	
		weight loss	
		Severity symptom	
		clusters	
		Hormonal cluster:	
		sweats bot flashes	
		problems with social	
		interest or activity	
		difficulty	
		concentrating nein	
		concentrating, pain	
		Perpiratory ductor:	
		difficulty broathing	
		chortness of brooth	
		shormess of breath,	
		pain, cougn	

	Psychological cluster: worrying, feeling sad, feeling irritable, feeling nervous, abdominal cramps	
	Gi/epitnelial cluster: lack of appetite, change in the way food tastes, weight loss, changes in skin, constipation, nausea, dizziness, itching, "I don't look like myself", hair loss	
	<u>Weight change</u> <u>cluster</u> : weight gain, increased appetite, weight loss	
	Distress symptom clusters <u>Hormonal cluster</u> : sweats, hot flashes, problems with sexual interest or activity, pain	
	<u>Respiratory cluster</u> : difficulty breathing, shortness of breath, cough	

	Psychological/GI cluster: abdominal cramps, feeling sad, feeling bloated, worrying, feeling nervous, diarrhea, problems with sexual	
	difficulty concentrating, feeling drowsy, constipation, feeling irritable, itching	
	<u>Gl/epithelial cluster</u> : lack of appetite, change in the way food tastes, changes in skin, nausea, dizziness, itching, "I don't look like myself", hair loss, dry mouth, feeling irritable	
	Weight change cluster: weight gain, increased appetite, lack of appetite, weight loss, feeling bloated	
	N/A	

Ren et al., 2017 n	n = 99	Instrument(s): Chinese	3 symptom clusters	Strengths:
		- MDASI (modified): 15	identified:	
Purpose(s):	Mean age: 61.9 (±9.6).	symptoms		Evaluated symptom
Describe symptom	Range: NR		<u>Fatigue-malaise</u>	clusters in patients
experiences and		<u>Criteria used to</u>	<u>cluster</u> : fatigue,	with bladder cancer
explore whether F	Female: 6.1%	exclude symptoms: No	drowsiness, pain,	
symptoms were			memory problems,	Utilized a valid and
clustered E	Ethnicity: NR	<u>Analysis</u> : EFA	loss of appetite	reliable symptom inventorv
Explore the potential	Race: NR	Dimension(s): severity	GI cluster:	
predictors of each		<u></u>	Nausea vomiting	Correlated symptom
symptom cluster	Employment status <sup>,</sup> NR	Symptoms allowed to	, reaced, remaining	cluster factor scores
		load on more than one	Psycho-urinary	with other patient
Analyze the	Inpatients <sup>,</sup> NR	factor: NR	cluster: sleep	outcomes
correlations	Outpatients: NR	<u></u>	disturbance body	
between symptom		Minimum factor	image impairment	Limitations <sup>.</sup>
clusters and OOL in	Diagnosis <sup>.</sup>	loadings required to	urinary dysfunction	<u>Elimitationo</u> .
bladder cancer	Histologically confirmed bladder	include symptom within	sadness distress	Cross-sectional
natients three	cancer 100%	cluster: NR		design
months after radical			Additional outcomes:	doolgii
cystectomy with an T	Treatment <sup>.</sup>	Method of evaluating	Age complication	Small sample size
ileal conduit or	Adjuvant CTX 45 5%	for stability of	severity plasma	
orthotopic		symptoms across	albumin level	Recruited patients
neobladder T	Time of symptom assessment <sup>.</sup>	symptom dimensions	orthotopic	from a single medical
reconstruction	3 months post radical cystectomy	and/or timepoints: N/A	neobladder	center
	with an ileal conduit or orthotopic		reconstruction,	
Design: cross-	neobladder reconstruction	Analysis of secondary	adjuvant CTX and	Used only a single
sectional		outcomes: Accordion	ASA score	dimension to evaluate
		Severity Grading	significantly predicted	for symptom clusters
Location: China		System of surgical	fatigue-malaise	
		complications	distress	
		ASA score	CTX orthotopic	
			neobladder	
		FACT-General	reconstruction	
			female gender ASA	

			score and albumin	
			significantly predicted	
			gastrointestinal	
			distress	
			Poing upmorried	
			Being unmarned,	
			having a higher level	
			of education, and	
			higher complication	
			severity level	
			significantly predicted	
			peycho uripary	
			psycho-unitary	
			aistress	
			Negativa correlationa	
			Negative correlations	
			were found between	
			QOL and each	
			symptom cluster	
			factor score	
Sezgin & Bektas,	<i>n</i> = 109	Instrument(s):	3 symptom clusters	Strengths:
2020		Turkish MSAS: 32	identified across	
	Mean age: NR	symptoms	each symptom	Symptom clusters
Purpose(s)	Range: 19-84 years	eymptome	dimension:	were created using
Determine the	range. 10 of years	Critoria used to	dimension.	multiple dimonsions of
	<b>F</b> ame also <b>11</b> 00/		<b>F</b>	
symptoms	Female: 41.3%	exclude symptoms: No	Frequency symptom	the symptom
experienced by			clusters	experience
lymphoma patients	Ethnicity: NR	<u>Analysis</u> : HCA	<u>Main cluster I</u> :	
			nausea, vomiting,	Utilized a valid and
Determine the	Race: NR	Dimension(s):	loss of appetite, dry	reliable symptom
symptom clusters of		frequency, severity,	mouth, fatigue or	inventory
lymphoma patients	Employment status	distress	energy loss pain	,
	Unemployed 74 3%			Evaluated symptom
Determine the	Employed part-time 14 7%	Symptoms allowed to	Main cluster II:	clusters in patients
functional status of	Employed full time 11.0%	load on more than one	diarrhea	with lymphoma
lymphome notions			haing/faaling	
iymphoma patients		Iactor: NO	being/reeling	
	Inpatients: <i>n</i> = 0		sensitive, dizziness,	Limitations:

Determine the effect	Outpatients: <i>n</i> = 109	Minimum factor	difficulty in	
of symptoms on the		loadings required to	swallowing, difficulty	Cross-sectional
functional status of	Diagnosis:	include symptom within	in concentrating,	design
lymphoma patients	Non-Hodgkin's lymphoma 73.4%	cluster: NR	difficulty in urinating.	5
	Hodgkin's lymphoma 26.6%	<u> </u>	feeling swelled.	Timing of symptom
Design: cross-	5 7 1 2 2	Method of evaluating	feeling angry.	assessment was not
sectional	Treatment:	for stability of	problems with sexual	reported
	CTX 100.0%	symptoms across	desire and activity	
Location: Turkey		symptom dimensions	,	Clusters were not
<u></u> ,	Time of symptom assessment: NR	and/or timepoints: NR	Main cluster III:	named
			feeling sad, worrving	
		Analysis of additional	difficulty in sleeping.	Did not use a method
		outcomes: N/A	cough, shortness of	to assess for stability
			breath, feeling sleepy	of symptom clusters
			or dizzy, sweating,	across symptom
			numbness/tingling in	dimensions
			hands or feet, itching	
			, <b>3</b>	
			Severity symptom	
			clusters	
			Main cluster I:	
			mouth sores,	
			changes in tasting	
			foods, nausea.	
			vomiting, weight loss,	
			pain, fatique or	
			energy loss, sweating	
			Main cluster II:	
			constipation, swelling	
			of arms or legs,	
			changes in skin, drv	
			mouth, feeling sad,	
			worrying, feeling	
			sleepy or dizzy,	

difficulty in sleeping,
itching
Main cluster III <sup>.</sup>
courds shortness of
breath
breath,
numbness/tingling in
the hands or feet,
difficulty in
swallowing, swelling
of arms or leas
dizzinese swelling
facting difficulty in
urinating, difficulty in
concentrating, feeling
angry, diarrhea, l
don't like myself,
feelina/beina
sensitive problems
with sexual desire
and activity
and activity
Distress symptom
clusters
Main cluster I:
dizziness, difficulty in
swallowing, feeling
sleepy or dizzy
loougn
Main aluatar II:
shortness of breath,
swelling of arms or
legs, changes on
skin, itching, difficulty
in concentrating,

			feeling angry, feeling	
			swelled, difficulty in	
			urinating, diarrhea,	
			feeling/being	
			sensitive, I don't like	
			myself,	
			numbness/tingling in	
			hands or feet,	
			problems with sexual	
			desire and activity	
			Main cluster III:	
			feeling sad, worrying,	
			difficulty in sleeping,	
			sweating, nausea,	
			loss of appetite,	
			mouth sores, change	
			in taste of food,	
			weight loss, pain,	
			fatigue or energy	
			loss, dry mouth,	
			vomiting, hair loss,	
			constipation	
			Additional outcomes:	
			N/A	
Sullivan et al., 2017	<i>n</i> = 515	Instrument(s):	5 symptom clusters	Strengths:
		MSAS (modified): 38	identified using	
Purpose(s):	Mean age: 53.3 (±11.6) years	symptoms	symptom occurrence:	Symptom clusters
Identify whether the	Range: 21-90 years			were created using
number and types of		Criteria used to	Psychological cluster:	two dimensions of the
symptom clusters	Female: 99.2%	exclude symptoms:	feeling nervous,	symptom experience
differed based on		Yes	teeling sad, worrying,	
symptom	Ethnicity and Race:	<b>_</b>	teeling irritable, "I	Utilized a valid and
occurrence rates or	White 66.9%	<u>Analysis</u> : EFA	don't look like myself"	reliable symptom
severity ratings were	Black 6.9%			inventory

used to create the	Asian or Pacific Islander 15.3%	Dimension(s):	Hormonal cluster: hot	
symptom clusters	Hispanic, Mixed, or other 10.9%	occurrence, severity	flashes, difficulty	Limitations:
	· · · · · · · · · · · · · · · · · · ·		sleeping, sweats.	
Design: cross-	Employment status:	Symptoms allowed to	problems with sexual	Cross-sectional
sectional	Working 41.0%	load on more than one	interest or activity	design
	Not working 59.0%	factor: Yes		
Location: United			Nutritional cluster:	
States	Inpatients: $n = 0$	Minimum factor	dry mouth nausea	
	Outpatients: $n = 515$	loadings required to	lack of appetite	
		include symptom within	change in the way	
	Diagnosis:	cluster: 0.40	food tastes, weight	
	Breast Cancer 100 0%	<u></u> . •. ••	loss abdominal	
		Method of evaluating	cramps diarrhea	
	Treatment:	for stability of		
	Adjuvant CTX 74.0%	symptoms across	GI cluster: weight	
	Neoadiuvant CTX 26 0%	symptom dimensions	loss feeling bloated	
		and/or timepoints	weight gain	
	Time of symptom assessment:	Kirkova and Walsh.		
	7 days after the administration	2007	Epithelial cluster: "I	
	of the $2^{nd}$ or $3^{rd}$ cycle of CTX		don't look like	
		Analysis of additional	myself" change in	
		outcomes: N/A	the way food tastes	
		<u></u>	hair loss mouth	
			sores	
			6 symptom clusters	
			identified using	
			symptom severity:	
			by inploin beventy.	
			Hormonal cluster: hot	
			flashes sweats	
			Psychological cluster	
			feeling sad feeling	
			nervous worrving	
			feeling irritable	

			CTX neuropathy cluster: feeling drowsy, numbness or tingling in hands/feet, pain <u>GI cluster</u> : feeling bloated, abdominal cramps, weight gain <u>Nutritional cluster</u> : weight gain, weight loss, nausea, lack of appetite <u>Epithelial cluster</u> : hair loss, changes in the way food tastes, "I don't look like myself", changes in	
			Additional outcomes:	
			IN/A	
Vuttanon et al.,	n = 96	Instrument(s): ESAS –	4 symptom clusters	Strengths:
2019		That version: 9	identified:	
	Mean age:	symptoms		Utilized a valid and
Purpose(s):	Experimental group: 50.7 (±9.1)		Cluster 1: anxiety,	reliable symptom
Identify symptom	years	Criteria used to	emotional distress	Inventory
clusters in Thai	Control group: 52.4 (±10.0)	exclude symptoms: No		
patients with breast			<u>Cluster 2</u> : nausea,	Limitations:
cancer who are	Female: NR	Analysis: EFA	pain	
undergoing CTX				Cross-sectional
	Ethnicity: Thai 100.0%	Dimension(s): severity	<u>Cluster 3</u> :	design
			arowsiness, fatigue	

Examine the effect	Race: NR	Symptoms allowed to		Small sample size
of PMR on symptom		load on more than one	Cluster4: depression,	
clusters	Employment status: NR	factor: No	lack of appetite	Used 9 symptoms to
				evaluate for symptom
Design: cross-	Inpatients: NR	Minimum cluster value	Additional outcomes:	clusters
sectional	Outpatients: NR	required to include	N/A	
		symptom within cluster:		Unclear when the
Location: Thailand	Diagnosis:	NR		symptoms were
	Breast cancer 100.0%			assessed in relation to
		Method of evaluating		the completion of CTX
	Treatment:	<u>for stability of</u>		
	Taxane 87.5%	symptoms across		Used only a single
	Herceptin 12.5%	symptom dimensions		dimension to evaluate
		and/or timepoints: N/A		for symptom clusters
	Time of symptom assessment:			
	After completion of CTX	Analysis of secondary		Symptom clusters
		outcomes: N/A		were not named
Wong et al., 2017	<i>n</i> = 157	Instrument(s):	5 symptom clusters	Strengths:
Wong et al., 2017	n = 157	Instrument(s): MSAS (modified): 38	5 symptom clusters identified across	Strengths:
Wong et al., 2017 <u>Purpose(s)</u> :	<i>n</i> = 157 Mean age: 64.0 (±11.1) years	Instrument(s): MSAS (modified): 38 symptoms	5 symptom clusters identified across each symptom	<u>Strengths</u> : Symptom clusters
Wong et al., 2017 <u>Purpose(s)</u> : Compare the	<i>n</i> = 157 Mean age: 64.0 (±11.1) years Range: NR	Instrument(s): MSAS (modified): 38 symptoms	5 symptom clusters identified across each symptom dimension:	<u>Strengths</u> : Symptom clusters were created using
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of	n = 157 Mean age: 64.0 (±11.1) years Range: NR	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u>	5 symptom clusters identified across each symptom dimension:	Strengths: Symptom clusters were created using two dimensions of the
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters	n = 157 Mean age: 64.0 (±11.1) years Range: NR Female: 56.6%	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> :	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i>	Strengths: Symptom clusters were created using two dimensions of the symptom experience
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using	n = 157 Mean age: 64.0 (±11.1) years Range: NR Female: 56.6%	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> : Yes	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i>	Strengths: Symptom clusters were created using two dimensions of the symptom experience
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom	n = 157 Mean age: 64.0 (±11.1) years Range: NR Female: 56.6% Ethnicity and Race:	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> : Yes	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i> <u>Sickness behavior</u>	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom occurrence vs.	n = 157 Mean age: 64.0 (±11.1) years Range: NR Female: 56.6% Ethnicity and Race: White 71.8%	Instrument(s): MSAS (modified): 38 symptoms Criteria used to exclude symptoms: Yes Analysis: EFA	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i> <u>Sickness behavior</u> <u>cluster</u> : abdominal	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom clusters in patients
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom occurrence vs. severity in a	<ul> <li>n = 157</li> <li>Mean age: 64.0 (±11.1) years Range: NR</li> <li>Female: 56.6%</li> <li>Ethnicity and Race: White 71.8% Black 9.9%</li> </ul>	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> : Yes <u>Analysis</u> : EFA	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i> <u>Sickness behavior</u> <u>cluster</u> : abdominal cramps, constipation,	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom clusters in patients with lung cancers
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom occurrence vs. severity in a homogeneous	<ul> <li>n = 157</li> <li>Mean age: 64.0 (±11.1) years Range: NR</li> <li>Female: 56.6%</li> <li>Ethnicity and Race: White 71.8% Black 9.9% Asian or Pacific Islander 9.9%</li> </ul>	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> : Yes <u>Analysis</u> : EFA <u>Dimension(s)</u> :	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i> <u>Sickness behavior</u> <u>cluster</u> : abdominal cramps, constipation, difficulty	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom clusters in patients with lung cancers
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom occurrence vs. severity in a homogeneous sample of lung	<ul> <li>n = 157</li> <li>Mean age: 64.0 (±11.1) years Range: NR</li> <li>Female: 56.6%</li> <li>Ethnicity and Race: White 71.8% Black 9.9% Asian or Pacific Islander 9.9% Hispanic, Mixed, or other 8.5%</li> </ul>	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> : Yes <u>Analysis</u> : EFA <u>Dimension(s)</u> : occurrence, severity	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i> <u>Sickness behavior</u> <u>cluster</u> : abdominal cramps, constipation, difficulty concentrating, feeling	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom clusters in patients with lung cancers Used a valid and
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom occurrence vs. severity in a homogeneous sample of lung cancer patients one	<ul> <li>n = 157</li> <li>Mean age: 64.0 (±11.1) years Range: NR</li> <li>Female: 56.6%</li> <li>Ethnicity and Race: White 71.8%</li> <li>Black 9.9%</li> <li>Asian or Pacific Islander 9.9%</li> <li>Hispanic, Mixed, or other 8.5%</li> </ul>	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> : Yes <u>Analysis</u> : EFA <u>Dimension(s)</u> : occurrence, severity	5 symptom clusters identified across each symptom dimension: Occurrence symptom clusters Sickness behavior cluster: abdominal cramps, constipation, difficulty concentrating, feeling drowsy, lack of	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom clusters in patients with lung cancers Used a valid and reliable symptom
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom occurrence vs. severity in a homogeneous sample of lung cancer patients one week after CTX	<ul> <li>n = 157</li> <li>Mean age: 64.0 (±11.1) years Range: NR</li> <li>Female: 56.6%</li> <li>Ethnicity and Race: White 71.8%</li> <li>Black 9.9%</li> <li>Asian or Pacific Islander 9.9%</li> <li>Hispanic, Mixed, or other 8.5%</li> <li>Employment status:</li> </ul>	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> : Yes <u>Analysis</u> : EFA <u>Dimension(s)</u> : occurrence, severity <u>Symptoms allowed to</u>	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i> <u>Sickness behavior</u> <u>cluster</u> : abdominal cramps, constipation, difficulty concentrating, feeling drowsy, lack of energy, nausea,	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom clusters in patients with lung cancers Used a valid and reliable symptom inventory
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom occurrence vs. severity in a homogeneous sample of lung cancer patients one week after CTX administration	<ul> <li>n = 157</li> <li>Mean age: 64.0 (±11.1) years Range: NR</li> <li>Female: 56.6%</li> <li>Ethnicity and Race: White 71.8% Black 9.9%</li> <li>Asian or Pacific Islander 9.9% Hispanic, Mixed, or other 8.5%</li> <li>Employment status: Working 24.8%</li> </ul>	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> : Yes <u>Analysis</u> : EFA <u>Dimension(s)</u> : occurrence, severity <u>Symptoms allowed to</u> <u>load on more than one</u>	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i> <u>Sickness behavior</u> <u>cluster</u> : abdominal cramps, constipation, difficulty concentrating, feeling drowsy, lack of energy, nausea, sweats, vomiting	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom clusters in patients with lung cancers Used a valid and reliable symptom inventory
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom occurrence vs. severity in a homogeneous sample of lung cancer patients one week after CTX administration	<ul> <li>n = 157</li> <li>Mean age: 64.0 (±11.1) years Range: NR</li> <li>Female: 56.6%</li> <li>Ethnicity and Race: White 71.8% Black 9.9% Asian or Pacific Islander 9.9% Hispanic, Mixed, or other 8.5%</li> <li>Employment status: Working 24.8% Not working 75.2%</li> </ul>	Instrument(s):MSAS (modified): 38symptomsCriteria used to exclude symptoms:YesAnalysis: EFADimension(s): occurrence, severitySymptoms allowed to load on more than one factor: Yes	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i> <u>Sickness behavior</u> <u>cluster</u> : abdominal cramps, constipation, difficulty concentrating, feeling drowsy, lack of energy, nausea, sweats, vomiting	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom clusters in patients with lung cancers Used a valid and reliable symptom inventory Limitations:
Wong et al., 2017 <u>Purpose(s)</u> : Compare the number and types of symptom clusters identified using ratings of symptom occurrence vs. severity in a homogeneous sample of lung cancer patients one week after CTX administration <u>Design</u> : cross-	<ul> <li>n = 157</li> <li>Mean age: 64.0 (±11.1) years Range: NR</li> <li>Female: 56.6%</li> <li>Ethnicity and Race: White 71.8% Black 9.9% Asian or Pacific Islander 9.9% Hispanic, Mixed, or other 8.5%</li> <li>Employment status: Working 24.8% Not working 75.2%</li> </ul>	Instrument(s): MSAS (modified): 38 symptoms <u>Criteria used to</u> <u>exclude symptoms</u> : Yes <u>Analysis</u> : EFA <u>Dimension(s)</u> : occurrence, severity <u>Symptoms allowed to</u> <u>load on more than one</u> <u>factor</u> : Yes	5 symptom clusters identified across each symptom dimension: <i>Occurrence symptom</i> <i>clusters</i> <u>Sickness behavior</u> <u>cluster</u> : abdominal cramps, constipation, difficulty concentrating, feeling drowsy, lack of energy, nausea, sweats, vomiting <u>Lung cancer-specific</u>	Strengths: Symptom clusters were created using two dimensions of the symptom experience Evaluated symptom clusters in patients with lung cancers Used a valid and reliable symptom inventory Limitations:

	Outpatients: <i>n</i> = 157	Minimum factor	tightness, cough,	Cross-sectional
Location: United		loadings required to	difficulty breathing,	design
States	Diagnosis:	include symptom within	shortness of breath	J
	Non-small cell lung cancer 88.1%	cluster: 0.40		
	Small cell lung cancer 11.9%		Psychological cluster:	
	ů – Č	Method of evaluating	difficulty	
	Treatment:	for stability of	concentrating, feeling	
	Platinum-doublet CTX 77.9%	symptoms across	bloated, feeling	
	Single agent CTX 20.0%	symptom dimensions	irritable, feeling	
	Monoclonal antibody alone 2.1%	and/or timepoints:	nervous, feeling sad,	
	, ,	Kirkova and Walsh.	problems with sexual	
	Time of symptom assessment:	2007	interest or activity.	
	7 days after the administration		worrving	
	of the 2 <sup>nd</sup> or 3 <sup>rd</sup> cycle of CTX	Analysis of additional		
	- <b>,</b> -	outcomes: N/A	Nutritional cluster:	
			increased appetite.	
			lack of appetite.	
			weight gain, weight	
			loss	
			1000	
			Epithelial cluster	
			changes in skin har	
			loss "I don't look like	
			myself " mouth sores	
			mysell, modul soles	
			Severity symptom	
			clusters	
			Sickness behavior	
			cluster: abdominal	
			cramps constination	
			difficulty	
			concentrating feeling	
			drowsy lack of	
			energy nausea	
			sweats vomiting	
			feeling bloated	
			icening bloated,	

	feeling nervous, feeling sad, problems	
	with sexual interest	
	or activity, worrying,	
	dizziness, dry mouth,	
	pain, swelling of arms	
	or legs	
	-	
	Lung cancer-specific	
	cluster: chest	
	tightness, cough,	
	difficulty breathing.	
	shortness of breath.	
	swelling of arms or	
	leas	
	9-	
	Nutritional cluster	
	increased appetite	
	lack of appetite	
	weight gain weight	
	1035	
	Psychological cluster:	
	fooling irritable	
	fooling norvous	
	feeling and wornving	
	reening sau, worrying	
	Epitholial eluster	
	<u>epititelial cluster</u> .	
	myself, mouth sores,	
	swelling of arms or	
	legs	
	Additional outcomes:	
	N/A	

Abbreviations: ALL = acute lymphoblastic leukemia; AML = acute myeloid leukemia; ASA = American Society of Anesthesiologists; CTX = chemotherapy; CIPN = chemotherapy-induced peripheral neuropathy; EFA = exploratory factor analysis; FACIT-F = Functional Assessment of Chronic Illness Therapy-Fatigue; FACT = Functional Assessment of Cancer Therapy; FSIS = Female Sexual Function Index; GI = gastrointestinal; HADS = Hospital Anxiety and Depression Scale; MDASI = M.D. Anderson Symptom Instrument; MSAS = Memorial Symptom Assessment Scale; NA = not applicable; NR = not reported; NRS = Numeric Rating Scale; PCA = principle component analysis; PSQI = Pittsburgh Sleep Quality Index; QOL = quality of life; TSO = Treatment-Specific Optimism