

Introduction

- Esophagectomy for esophageal cancer has a high rate of post-operative complications.
- Risk factors for developing esophageal cancer include maladaptive coping like smoking, alcohol abuse and overeating.
- Coping strategies used to manage stress are described as adaptive (constructive) and maladaptive (not constructive) and can be measured using the Brief COPE survey [1].

Objective

- We hypothesized that patients with esophageal cancer used more maladaptive coping strategies to prepare for and recover after surgery.
- We hypothesized that patients with maladaptive coping strategies would have higher rates of post-operative complications and longer length of hospital stay after esophagectomy.

Methods

- Patients who underwent an esophagectomy from 2017-2018 at University of Michigan were surveyed using Brief COPE [1] during post-operative recovery period.
- Patients were included as using a coping strategy if they scored average of 2.5/4 or greater.
- Groups were defined as “only adaptive coping” and “adaptive and maladaptive coping” used.
- Chi-square and Fischer’s exact test were used to measure significance of difference.

Results

Male Gender	80.5% (33/41)
Average Age	63.1 years (36-80)
Race Non-Hispanic White	97.6% (40/41)
BMI	
Average	29.8
BMI => 30	43.9% (18/41)
BMI =>35	24.4% (10/41)
Smoking Tobacco Usage	
Average (pack-years)	33.3
Number Total Smokers	73.2% (30/41)
Heavy Smokers (>10y)	58.5% (24/41)
Alcohol Usage	
Regular Alcohol Use	41.5% (17/41)

Table 1: Demographics.

Complication	Total (N=41)	Adaptive (N=19)	Maladaptive (N=22)	P-Value
Reoperation	4.9% (2/41)	5.3% (1/19)	4.5% (1/22)	1.000
Readmission (30 Days)	14.6% (6/41)	15.8% (3/19)	13.6% (3/22)	1.000
Average Post-Op LOS (days)	9.85	10.31	9.45	0.7894
Post-Op Events Occurred	70.7% (29/41)	63.2% (12/19)	77.3% (17/22)	0.4926
Mortality at 30d Post-Op	0% (0/41)	0% (0/19)	0% (0/22)	1.000

Table 3: Maladaptive or adaptive coping strategies were not predicted by major complication rates. Major post-operative outcomes for patients undergoing esophagectomy for cancer between maladaptive and adaptive copers.

Coping Strategies	All Subjects (N=41)	Adaptive (N=19)	Maladaptive (N=22)
Acceptance	97.6% (40)	100% (19)	95.5% (21)
Emotional Support	80.5% (33)	84.2% (16)	77.3% (17)
Positive Reframing	70.7% (29)	63.2% (12)	77.3% (17)
Active Coping	61% (25)	42.1% (8)	77.3% (17)
Religion	56.1% (23)	53.6% (10)	59.1% (13)
Planning	53.7% (22)	42.1% (8)	63.6% (14)
Instrumental Support	48.8% (20)	36.8% (7)	59.1% (13)
Humor	31.7% (13)	10.5% (2)	50% (11)
Self-distraction	48.8% (20)	0	90.9% (20)
Venting	17.1% (7)	0	31.8% (7)
Self-blame	12.2% (5)	0	22.7% (5)
Denial	7.3% (3)	0	13.6% (3)
Behavioral Disengagement	4.9% (2)	0	9.1% (2)
Substance Abuse	2.4% (1)	0	4.5% (1)

Table 2: Brief COPE [1] survey results for post-esophagectomy patients (N=41).

Complication	Total (N=41)	Adaptive (N=19)	Maladaptive (N=22)	P-Value
Pneumonia	2.4% (1/41)	0% (0/19)	4.5% (1/22)	1.000
Total Pulmonary	24.4% (10/41)	36.8% (7/10)	13.6% (3/10)	0.1789
Atrial tachycardia	24.4% (10/41)	36.8% (7/19)	13.6% (3/22)	0.1445
Total Cardiac	46.4% (19/41)	68.4% (13/19)	27.3% (6/19)	0.0502
Anastomotic Leak	36.6% (15/41)	31.6% (6/19)	40.9% (9/22)	0.7460
Surgical Site Infection	7.3% (3/41)	5.3% (1/19)	9.1% (2/22)	1.000

Table 4: Rates of pulmonary, cardiac, anastomotic leak, or surgical site infections were not associated with greater use of maladaptive or adaptive coping skills. Frequency of specific complications for maladaptive and adaptive copers.

Results

Coping Strategy Used During Recovery Period	Post-Op Complications Experienced	No Post-Op Complications Experienced	P-Value
Active Coping	72% (18/25)	28% (7/25)	0.1940
Instrumental Support	65% (13/20)	35% (7/20)	1.000
Acceptance	63% (25/40)	37.5% (15/40)	1.000
Religion	60.9% (14/23)	39.1% (9/23)	0.7540
Emotional Support	60.6% (20/33)	39.4% (13/33)	0.6868
Planning	77.3% (17/22)	22.7% (5/22)	0.0597
Humor	76.9% (10/13)	23.1% (3/13)	0.3048
Positive Reframing	75.9% (22/29)	24.1% (7/29)	0.1489
Self-Distraction	65% (13/20)	35% (7/20)	1.000
Denial	100% (3/3)	0% (0/3)	0.2866
Substance Abuse	100% (1/1)	0% (0/1)	1.000
Venting	71.45% (5/7)	28.6% (2/7)	0.5541
Behavioral Disengagement	100% (2/2)	0% (0/2)	0.5244
Self-Blame	80% (4/5)	20% (1/5)	0.6357

Table 5: Post-operative complications did not predict coping strategies used. Patients who experienced post-operative complications for each coping strategy analyzed by the Brief COPE.

Conclusions

- Majority of patients reported smoking history and almost half reported regular alcohol use and/or obesity.
- Majority of patients used both adaptive and maladaptive coping strategies (53.7%) and all patients with maladaptive coping ALSO used adaptive strategies.
- There was no difference in post-operative LOS, readmission, reoperation, or mortality between adaptive-only and maladaptive copers.
- Experiencing any post-operative complication did not significantly predict use of maladaptive or adaptive coping strategies during recovery, however, trended toward using more planning to cope.
- Specific complications like pulmonary, cardiac, anastomotic leak, or surgical site infections did not significantly predict maladaptive or adaptive coping, however, cardiac complications trending toward using more adaptive coping strategies.