

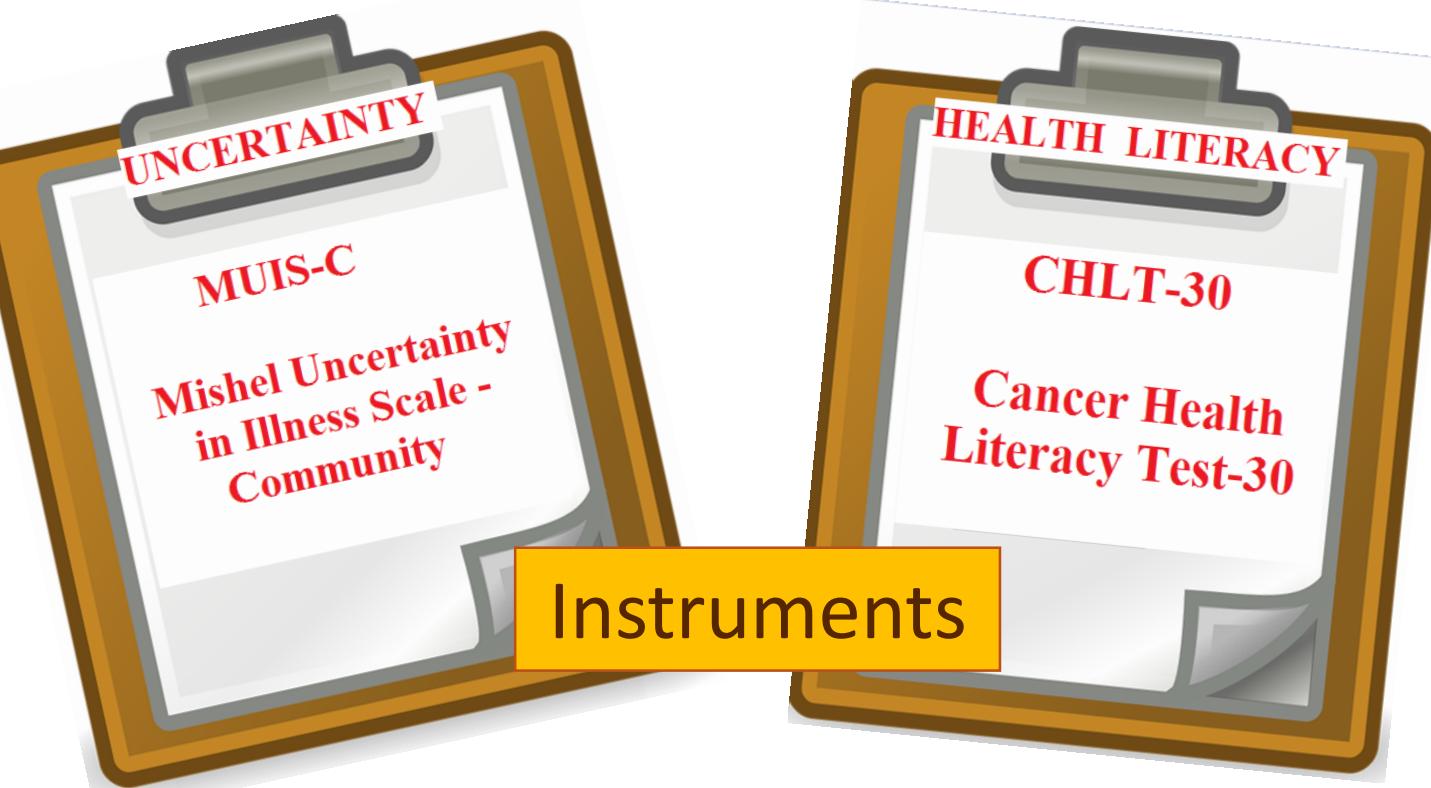
Uncertainty and Health Literacy in Pancreatic Cancer Patients

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Background

Pancreatic cancer is the third leading cause of cancer deaths in the United States with American Cancer Society estimates of 55,440 new cases and 44,330 deaths in 2018. It is an aggressive and recalcitrant malignancy with no established screening guidelines, no hallmark symptoms, a high recurrence rate and a low 5-year survival rate (8%).

The pancreatic cancer experience is fraught with events that can lead to uncertainty and requires proficient health literacy to navigate effectively.



Uncertainty and Health Literacy

Uncertainty in illness - a cognitive state that occurs when lack of cues leads to the inability to predict outcomes or meaningfully interpret health-related events.

Health literacy - the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.

Despite a shared link to cognition processing, information on the association between uncertainty and health literacy is scarce. Their relationship has not been studied and while the influence of each on cancer outcomes has been evaluated, no studies have focused on pancreatic cancer patients. Because both are modifiable with interventions that can improve outcomes, it is essential to address this gap.

Aims & Methods

The aims of this descriptive, cross-sectional study were:

1. Describe uncertainty (UC) and health literacy (HL) in pancreatic cancer patients
2. Examine the association between UC and HL in the pancreatic cancer patients
 - **Hypothesis:** Higher levels of HL are significantly correlated with lower levels of UC in pancreatic cancer patients
3. Examine if HL is a significant predictor of UC after adjusting for age, gender, race and ethnicity, education level, and disease treatment stage
 - **Hypothesis 3a:** HL is a significant predictor of UC after adjusting for age, gender, education level, race and ethnicity, and disease treatment stage
 - **Hypothesis 3b:** Education level, race, and disease treatment stage are significant predictors of UC and of HL in pancreatic cancer patients

Recruitment was performed on a consecutive basis in an ambulatory clinic.

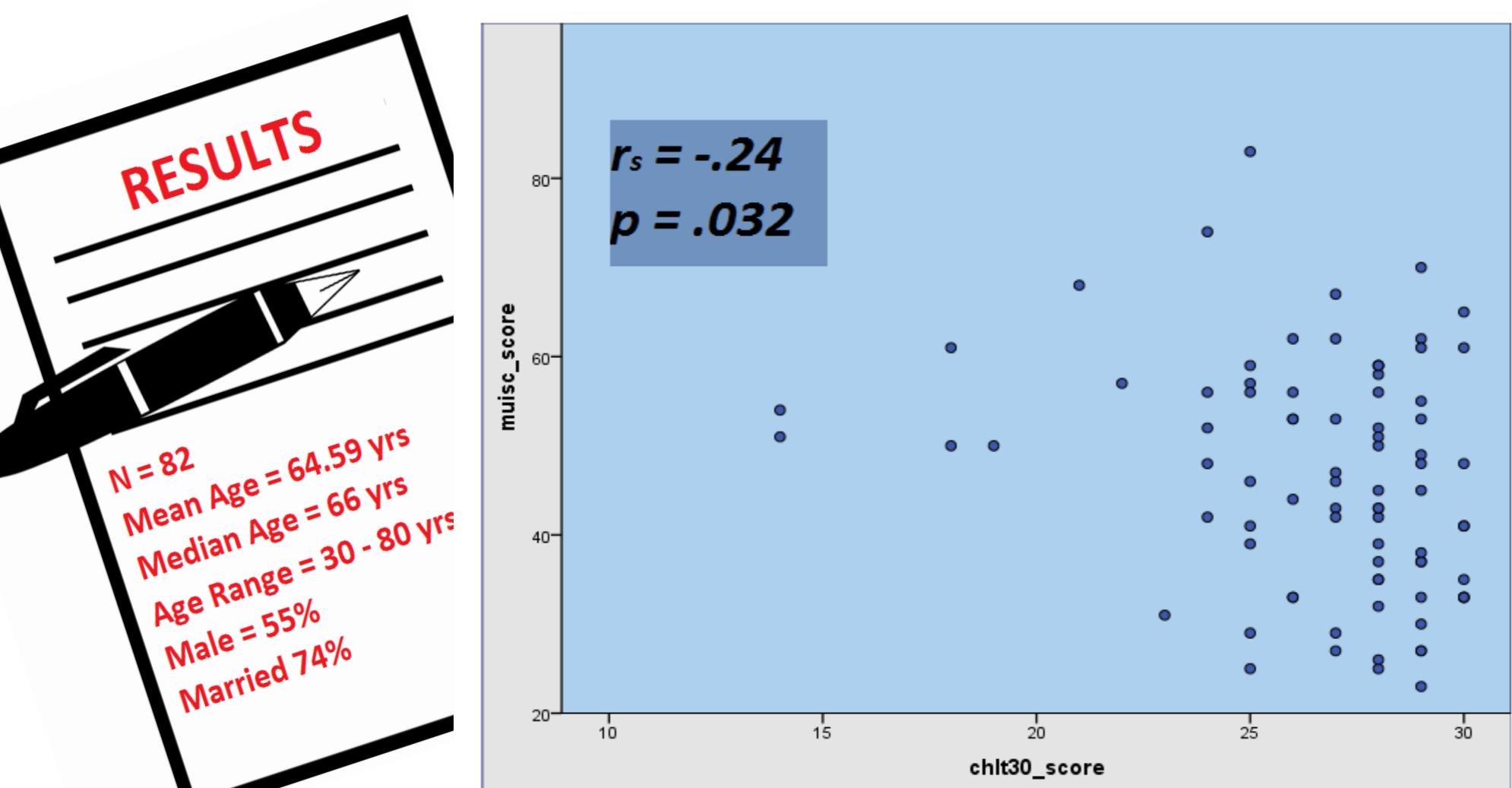
Spearman's Rho tested correlation and Kruskall Wallis testing evaluated group differences. Linear regression models tested for predictors with use of bias accelerated bootstrap when normal distribution was lacking.

Results

Predictors for Uncertainty and Health Literacy

	Uncertainty		Health Literacy	
	P value	η_p^2	P value	η_p^2
EDUCATION	.001	.215	.003	.174
PHASE OF CARE	.001	.219	.411	.038
SEX/GENDER	.993	.000	.266	.017
AGE	.871	.000	.395	.010
CHLT-30	.939	.011		

Distribution of MUIS-C and CHLT-30 Scores



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Uncertainty and Health Literacy Scores

	n	MUIS-C		CHLT-30		
		Median	IQR	P value	Median	IQR
RACIAL/ETHNIC SELF-IDENTIFICATION				.039		
• Asian	4 (5%)	44.5	12		26	4
• Black, African-American	7 (8%)	54	11		19	15
• Latino, Hispanic	6 (7%)	36	16		24.5	6
• White, Caucasian	65 (79%)	46	22		28	3
EDUCATION LEVEL				.009		
• Completed High School	10 (12%)	46.5	17		24	4
• Vocational School	3 (4%)	32	-		28	1
• Some College	26 (32%)	45	22		28	4
• Completed College	27 (33%)	48	20		28	3
• Some Graduate School	4 (5%)	35	10		29	2
• Complete Graduate Degree	12 (15%)	42.5	16		28	2
PHASE OF CARE				.014		
• Before Surgery	40 (49%)	49.5	17		27.50	5
• Within 2 Years After Surgery	30 (37%)	42	20		28	3
• Within 5 Years After Surgery	5 (6%)	37	14		28	4
• 5 or More Years After Surg	2 (2%)	39	-		28	-
• No Surgery Planned	5 (6%)	59	16		28	6

Significance p = <.05; Kruskal Wallis

Conclusions

The study revealed valuable information constructive to future research and clinical practice.

1. Uncertainty and health literacy had a significant albeit weak correlation ($r_s = -.24$, $p = .032$).
2. Education level was a significant predictor of uncertainty ($\eta_p^2 = .215$, $p = .001$) and health literacy ($\eta_p^2 = .174$, $p = .003$).
3. There were significant differences in the ability to interpret health events through different disease phases ($\eta_p^2 = .219$, $p = .001$).
4. Sample homogeneity restricted inferences and generalizability especially on effects of race/ethnicity.
5. Future studies with larger, heterogeneous samples are needed to further define and clarify significant relationships.

References

1. American Cancer Society, *Cancer Facts & Figures 2018*.
2. Dumenci, L., et al., *Measurement of cancer health literacy and identification of patients with limited cancer health literacy*. Journal of Health Communication, 2014. 19 Suppl 2: p. 205-24.
3. Mishel, M.H., *Uncertainty in illness*. Image Journal of Nursing Scholarship, 1988. 20(4): p. 225-32.