16th World Congress of PSYCHO-ONCOLOGY and Psychosocial Academy
Integrating psycho-oncology into mainstream cancer care: From research to action

University of Leicester

Which visual-analogue scales is best at measuring distress?
Emotion Thermometers or Distress Thermometer: combined dataset study

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BACKGROUND Distress has been described as the 6th vital sign in cancer. A number of instruments exist for measuring distress but in clinical practice short tools, such as visual-analogue scales are most acceptable.

METHODS Using the combined sets from three studies involving 817 patients seen in Leicester cancer centres we applied the Emotion Thermometers and Distress Thermometer and Hospital Anxiety and Depression Scale (HADS). In this study the HADS-T was considered the criterion standard for patient-reported distress (>14).
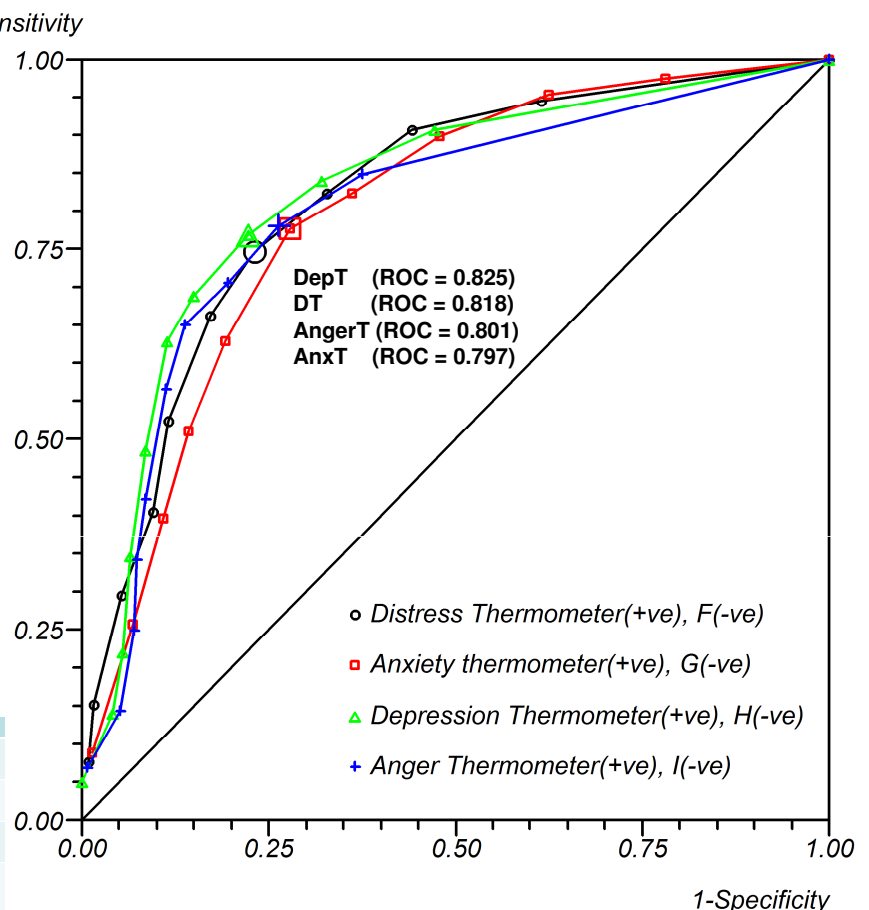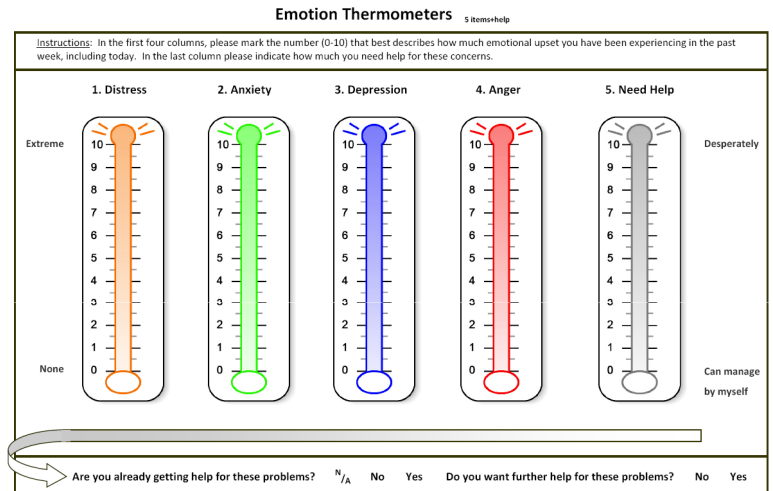
RESULTS Of 817 patients seen in Leicester most had non-palliative cancer treated with curative intent, most common being breast cancer. 29% had significant distress. Based on the ROC curve analysis all thermometers had modest accuracy against HADS-T distress.

The optimal thermometer was in ranked order:

DepT (ROC = 0.825); DT (ROC = 0.818)
AngerT (ROC = 0.801); AnxT (ROC = 0.797)

The optimal cut-offs were > 3; > 4 >5 >3 respectively. At these cut-offs the optimal sensitivity was 78.1% for the AngT and lowest 74.7% for the DT. Optimal specifically was 77.8% for the DepT and lowest was 71.2% for the AnxT.

Three HADS symptoms were closely linked with a positive DT score and these were all anxiety questions; namely: "worrying thoughts go through my mind" > "I get sudden feelings of panic" > "I fee tense or wound up"

Emotion Thermometers 5 items+help

Instructions: In the first four columns, please mark the number (0-10) that best describes how much emotional upset you have been experiencing in the past week, including today. In the last column please indicate how much you need help for these concerns.

1. Distress   2. Anxiety   3. Depression   4. Anger   5. Need Help

Are you already getting help for these problems? N/A No Yes   Do you want further help for these problems? No Yes

Sensitivity

DepT   (ROC = 0.825)
DT   (ROC = 0.818)
AngerT (ROC = 0.801)
AnxT   (ROC = 0.797)

○ Distress Thermometer(+ve), F(-ve)
□ Anxiety thermometer(+ve), G(-ve)
△ Depression Thermometer(+ve), H(-ve)
+ Anger Thermometer(+ve), I(-ve)

1-Specificity

Thermometer	Sensitivity	Specificity	ROC
Distress Thermometer	0.746 (CI = 0.686 to 0.800)	0.768 (CI = 0.732 to 0.802)	0.818 (CI = 0.787 to 0.849)
Depression Thermometer	0.768 (CI = 0.709 to 0.820)	0.778 (CI = 0.742 to 0.811)	0.824 (CI = 0.793 to 0.856)
Anxiety Thermometer	0.776 (CI = 0.718 to 0.828)	0.722 (CI = 0.683 to 0.758)	0.797 (CI = 0.765 to 0.829)
Anger Thermometer	0.780 (CI = 0.722 to 0.832)	0.737 (CI = 0.699 to 0.772)	0.801 (CI = 0.768 to 0.835)

IMPLICATIONS Single thermometers incorporating depression, anger and anxiety improve upon the value of the DT alone. A dimensional multi-domain approach to screening for emotional disorders is preferable to the DT alone. The DT can be improved with relatively little extra time burden upon clinicians. There are relatively few validation studies involving distress. A single thermometer has modest accuracy and can only be used as an initial first-screening step. Further research must demonstrate how screening can be a success in clinical practice.

CONCLUSIONS Based on a combined dataset involving 817 patients there is modest accuracy of a single thermometer alone. The DT has a sensitivity of 74.% and a specificity of 76.9% but this was slightly improved upon by the DepT.   The Emotion thermometers is freely available for clinicians at www.psycho-oncology.info/ET.htm