Hidden in plain sight: psychological barriers to participation in lung cancer screening

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Lung cancer screening with low-dose computed tomography (LDCT) became an official recommendation in the US in 2013 in response to the scientific evidence supported by the US-based National Lung Screening Trial.[1] In the years following the US implementation of lung cancer screening with LDCT, scientific evidence from subsequent international trials has supported the mortality reduction benefit of LDCT screening[2 3] and is now recommended in Croatia, some regions of China and Korea, and is currently under review by the UK's National Screening Committee. Despite the implementation of lung cancer screening, uptake remains low among screening-eligible individuals.[4] Low uptake has conventionally been linked to, and supported by, evidence regarding lack of awareness, low knowledge levels and misinformation.[5 6] However, as we consider the aetiology of suboptimal levels of lung cancer screening uptake and potential solutions, there are psychological consequences of lung cancer screening that are an important consideration as a potential barrier for patients who are weighing the option to screen, or not, for lung cancer.[7–9]

Multiple studies have supported an increase in anxiety, depression and cancer worry among individuals who undergo lung cancer screening.[7–9] Cancer screening can understandably evoke worry, fear, anxiety and depression, but may be heightened in a population that perceives themselves at greater risk such as individuals who smoke. Further considerations must be examined in this population such as the negative impact of psychological factors like stigma, mistrust and fatalism, in addition to the variables highlighted above.[10] Lung cancer screening is unique necessitating a different approach from other types of cancer screening that are based on age and family history. Because lung cancer screening targets the individual based on the behaviour of smoking, the stigma that is associated and perpetuated by this association has the potential to feed into additional psychological sequelae in this particular group that may affect screening uptake rates.

In this issue of *Thorax*, Kummer *et al* provide support that psychological distress is higher among high-risk individuals who are undergoing a screening LDCT in a real-world setting.[6] As anticipated, psychological distress was greater in individuals who had abnormal results. However, distress was not raised to clinically significant levels at short term follow-up which is consistent with prior studies.[8] An important gap remains in understanding the range of psychological outcomes longitudinally in routine lung screening practice after an individual begins a lung cancer screening programme regime, which includes annual screening and follow-up for abnormal findings. Further research is needed to more robustly understand how routine lung cancer screening in a real-world setting can impact psychological outcomes longitudinally from the patient perspective including, but not limited to, psychological distress, perceived stigma, anxiety, worry and other emotional sequalae that may result. Kummer *et al* note the importance of high-quality patient education and shared decision-making related to lung cancer screening especially in light of the potential for increased psychological distress.[6] Given the propensity for stigma to be present in this population compared with other cancer screening populations because of its association with smoking, Kummer *et al* results are even more significant when considering lung cancer screening implementation and patient outcomes.

In the US, when lung cancer screening was approved for reimbursement by the nation's largest insurer, the Centers for Medicare and Medicaid Services, documentation of a shared decision-making and counselling visit was mandated in order for LDCT screening to be reimbursed.[11] This was an unprecedented health policy decision in the US because this was the first time that a cancer screening service required documentation of shared decision-making.[11] Because LDCT screening involves a CT scan of the chest of individuals who have consumed cigarettes for a lengthy time period and in a heavy amount, the probability of finding an abnormality on an LDCT scan of the chest is high.[12] Many times, the abnormality is not cancerous. However, the time period between having the scan, being informed that there is an abnormality requiring follow-up testing, and performance of the additional testing to rule out cancer can create great psychological distress for the individual experiencing these events.[6] The potential for false positives, false discoveries and overdiagnosis is important in lung cancer screening elevating the value of the shared decision-making process and patient education even more for the patient considering the option to screen, or not, for lung cancer.[1 11 12] If individuals are at increased risk for psychological distress, this may serve as a barrier to engaging in key conversations with their clinician that could help allay those fears. The recent study by Kummer *et al* support both increased risk for psychological distress in this high-risk patient population and a need to consider this in educational efforts.[6] Tailoring information so the patient knows what to expect and what is common versus uncommon in the process of screening, potential findings and follow-up is essential. Future research is needed testing scalable tailored interventions to support the information sharing process in lung cancer screening to determine how best to (1) identify those as greatest risk for psychological distress; and (2) how best to support those identified at greatest risk for psychological distress. By tailoring information to provide extra support to individuals who may be at risk for greater psychological distress, the patient will not only be informed but may increase the likelihood of patient engagement in their care as well as improved adherence to follow-up and annual screening regimens and ultimately engaging the patient as a partner in their healthcare.

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