

Perception of Nontuberculous Mycobacterial Lung Disease Among Italian Pulmonologists

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BACKGROUND

- Nontuberculous mycobacteria (NTM) are ubiquitous environmental bacteria that can cause disease in susceptible individuals, with NTM lung disease (NTM-LD) being by far the most common clinical NTM disease manifestation^{1,2}
- Patients with bronchiectasis have a substantially increased risk of NTM infection; the odds of NTM-LD are up to 188-fold higher in patients with bronchiectasis compared with matched controls³
- The reported prevalence of NTM in patients with non-cystic fibrosis bronchiectasis (NCFB) ranges from 8% to 63%⁴⁻⁶
- Studies show that NTM-LD worsens chronic obstructive pulmonary disease,⁷ impairs quality of life,⁸ and increases mortality⁹⁻¹²

OBJECTIVE

- Measure perception of risk for NTM infection, disease severity, and understanding of NTM infection at the pathophysiological level among pulmonologists in Italy who manage adult patients with NCFB

METHODS

- Responses to an online survey were collected from 60 pulmonologists in Italy who spend ≥ 80% of their time in a hospital setting and who treated ≥ 10 adult patients with NCFB in the previous 12 months
- The following terms were used:
 - NTM: when referring to testing for the presence of NTM in respiratory samples
 - NTM infection: when referring to risk of contracting NTM (leading to NTM-LD)
 - NTM-LD: when determining respondents' agreement with statements related to the clinical impact of NTM-LD

RESULTS

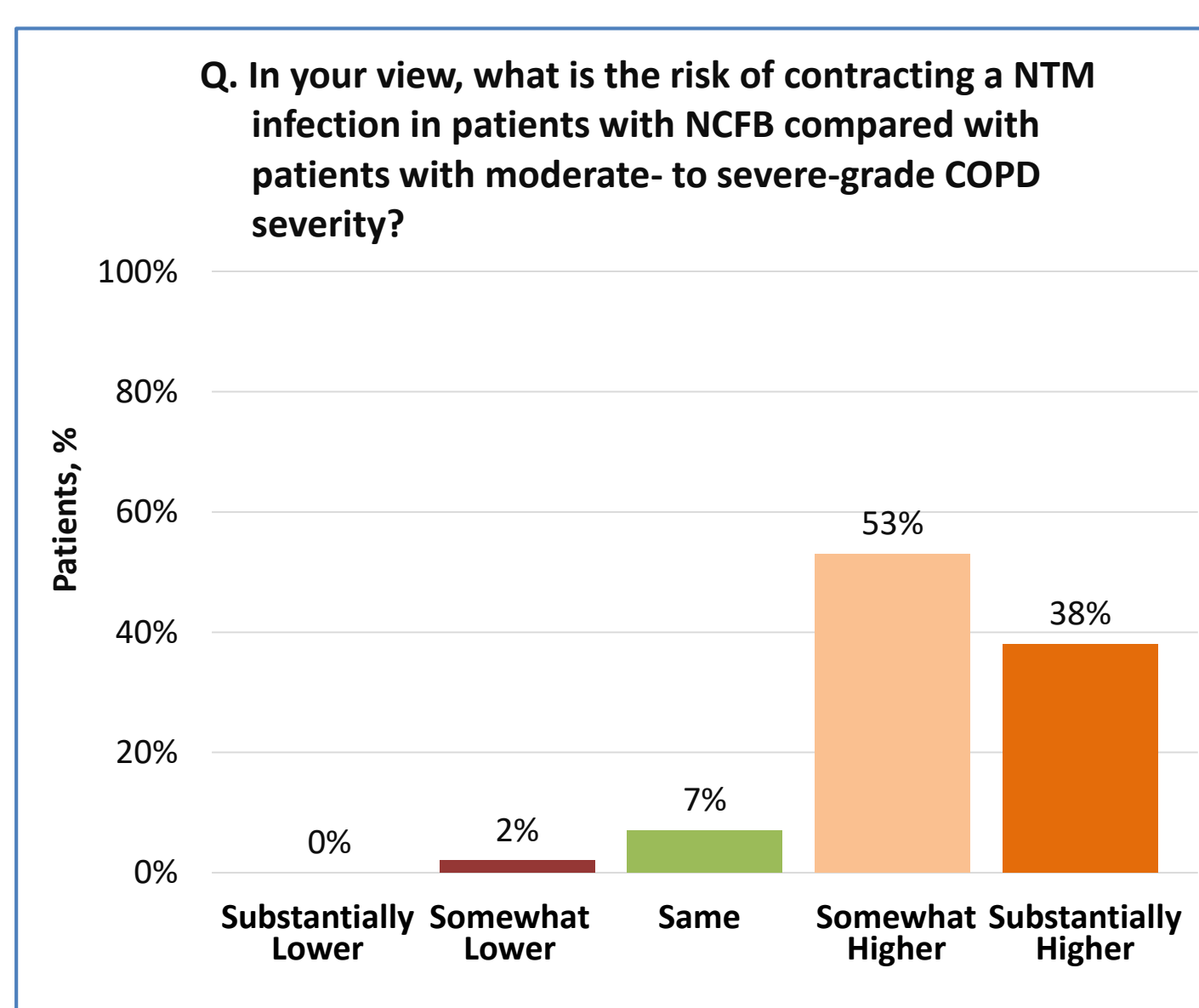
Respondent Characteristics

- Respondents included pulmonologists working primarily in a hospital setting (92%) who reported spending 53% of their time with outpatients
- On average, respondents managed 45 patients (range, 10-150) with NCFB during the past 12 months
- A total of 42% of respondents treated ≤ 10 patients with NTM-LD during the last 12 months; 45% did not treat any patients with NTM-LD

General Risk of NTM Infection in NCFB Population

- A total of 85% of respondents considered patients with NCFB to be "at particular risk" for contracting NTM infection, although respondents also estimated that an average of 23% of patients will contract NTM over the course of their NCFB
- Most respondents (91%) believed that the risk of contracting NTM infection is higher in patients with NCFB than in patients with moderate to severe chronic obstructive pulmonary disease (COPD) (Figure 1)
- The perceived risk of contracting NTM was considered "moderate" (mean score of 3.9 on a scale of 1-7, with 1 indicating minimal risk and 7 indicating extreme risk) in patients with NCFB

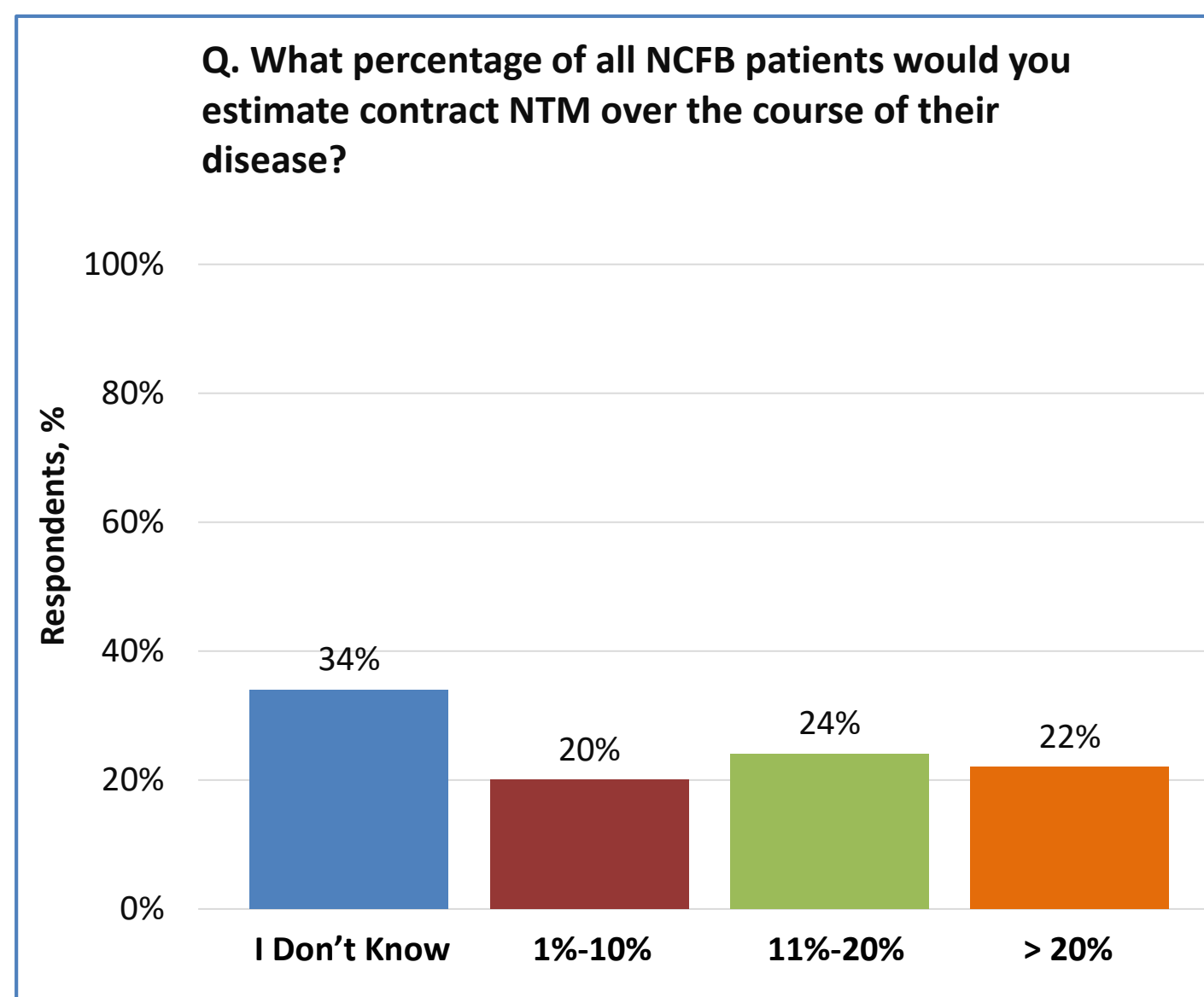
Figure 1. Perceived Risk of Contracting NTM Infection in Patients With NCFB vs Patients With Moderate to Severe COPD



Estimated Risk of NTM Infection in Patients With NCFB Managed by Respondents

- A total of 44% of respondents estimated that 1% to 20% of their patients with NCFB will contract NTM; 34% of respondents were not able to estimate risk (Figure 2)
- Correspondingly, 52% of patients with NCFB managed by the respondents were tested for NTM, with an average of 19% testing positive for NTM

Figure 2. Estimated Percentage of Patients With NCFB Who Will Contract NTM Over the Course of Their Disease



Agreement With Statements About NTM-LD Severity

- Nearly all respondents (96%) agreed that when NTM-LD is left untreated or inappropriately managed, it can lead to severe consequences, including progressive worsening of respiratory function (Figure 3)
- Most respondents (90%) agreed that NTM lung infection in any patient significantly increases morbidity and leads to more frequent hospitalizations (Figure 4)
- Few respondents (10%) did not perceive NTM-LD as having a significant impact on mortality, and 17% were unsure (Figure 5)

Figure 3. Agreement With the Statement "When Left Untreated or Inappropriately Managed, NTM-LD Can Lead to Severe Consequences, Including Progressive Worsening of Respiratory Function"

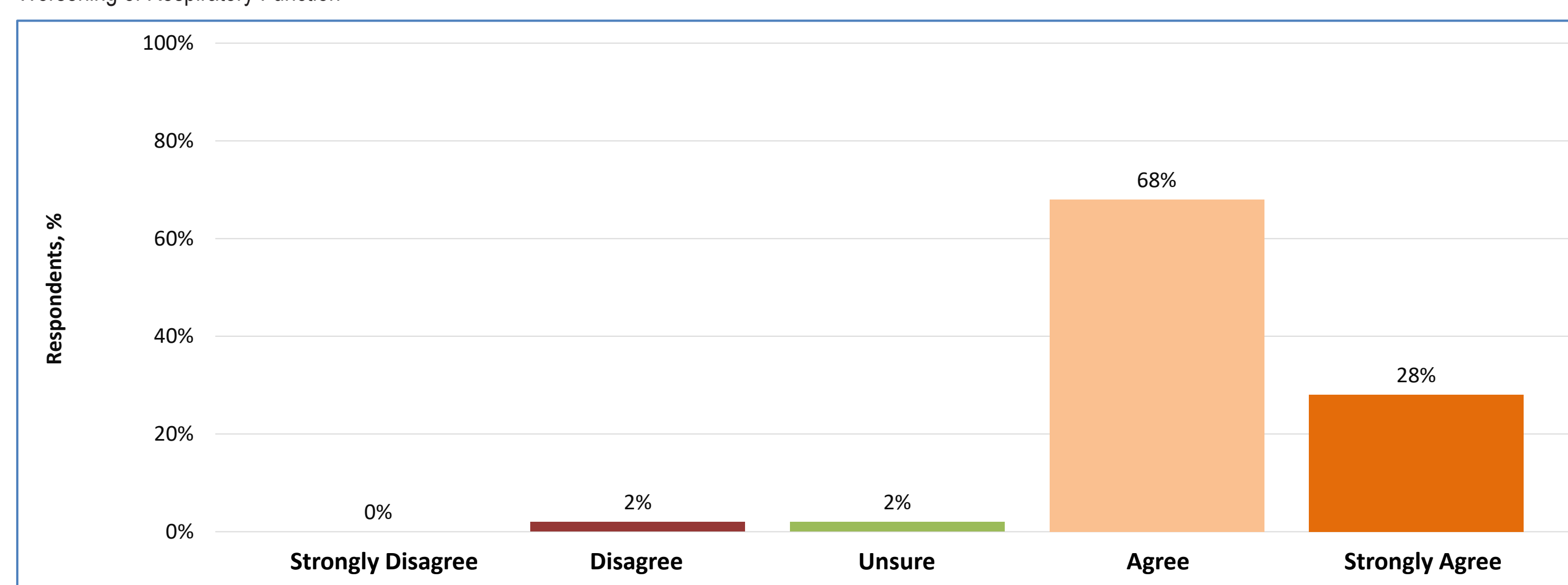


Figure 4. Agreement With the Statement "NTM Lung Infection in Any Patient Significantly Increases Morbidity and Leads to More Frequent Hospitalizations"

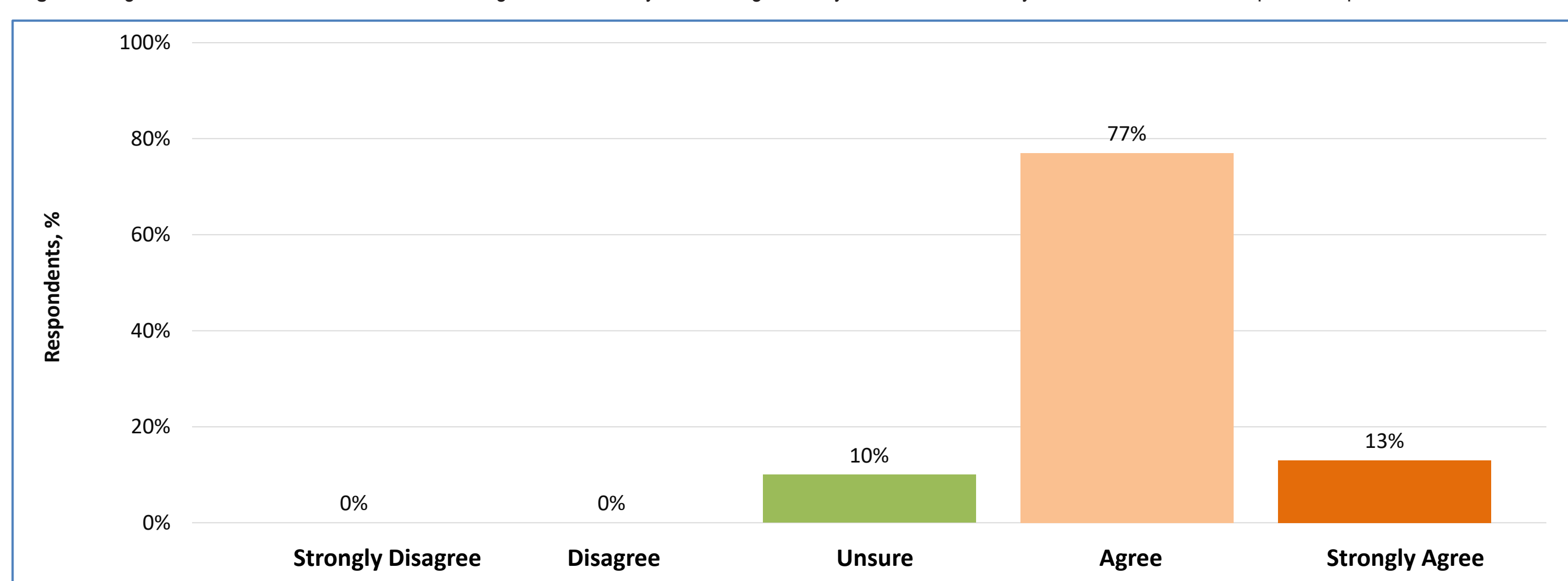
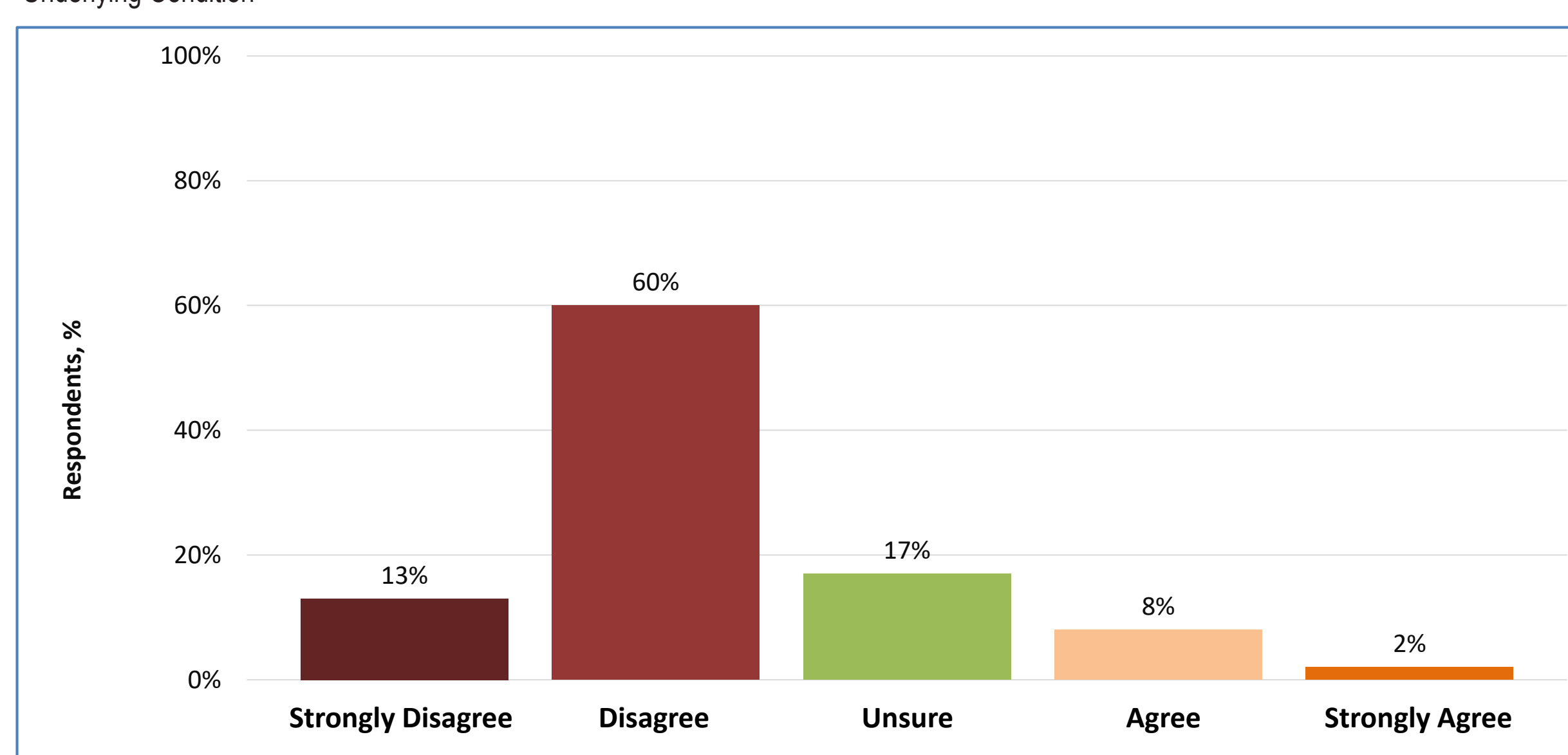


Figure 5. Agreement With the Statement "NTM-LD Has No Significant Impact on Mortality Risk as Mortality is Determined by the Underlying Condition"



Understanding of NTM Infection at the Pathophysiological Level

- Overall, 70% of respondents agreed that NTM can form biofilms within human lung tissue (Figure 6), and 74% agreed that macrophages are an important reservoir of NTM in a host (Figure 7)

Figure 6. Agreement With the Statement "NTM Form Biofilms Within Human Lung Tissue"

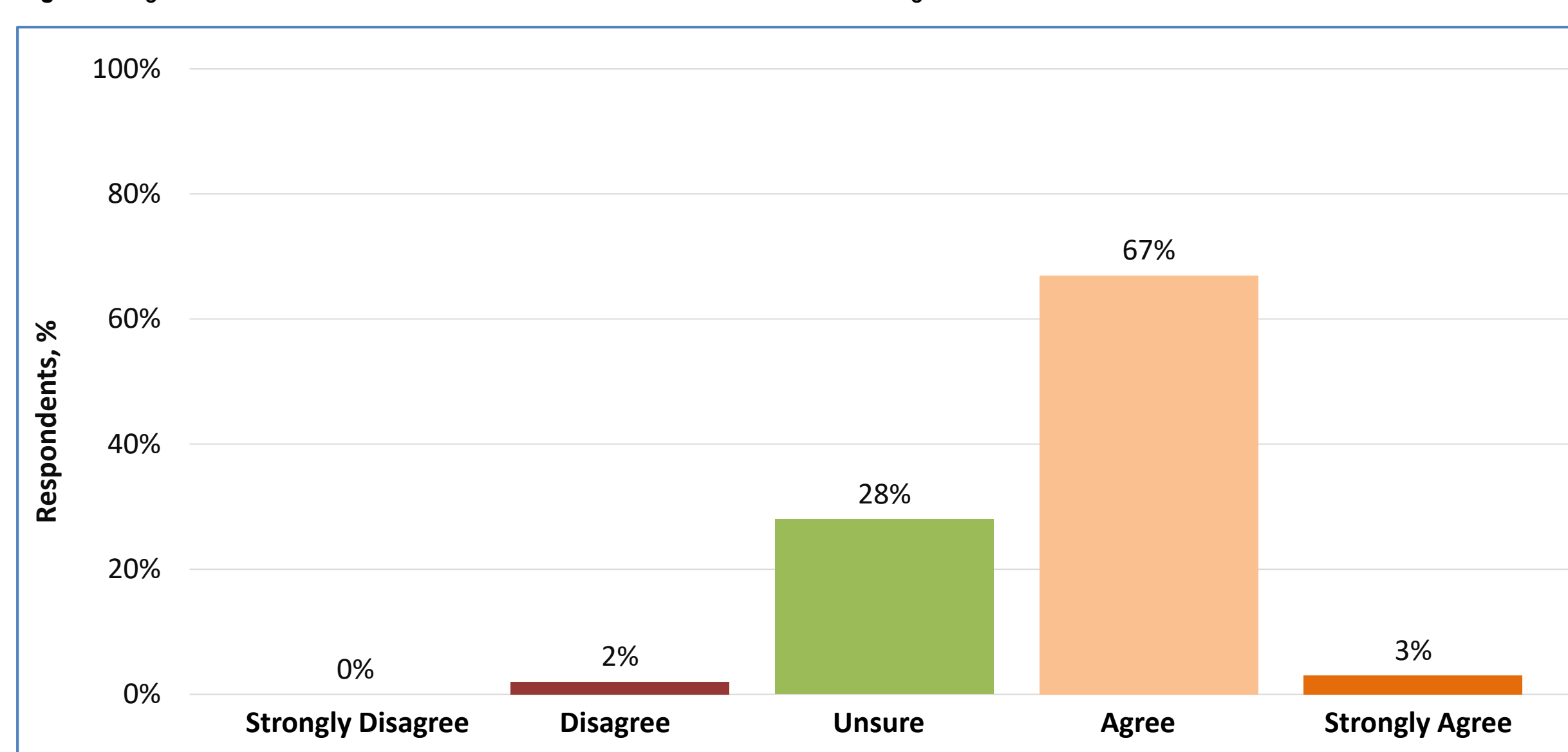
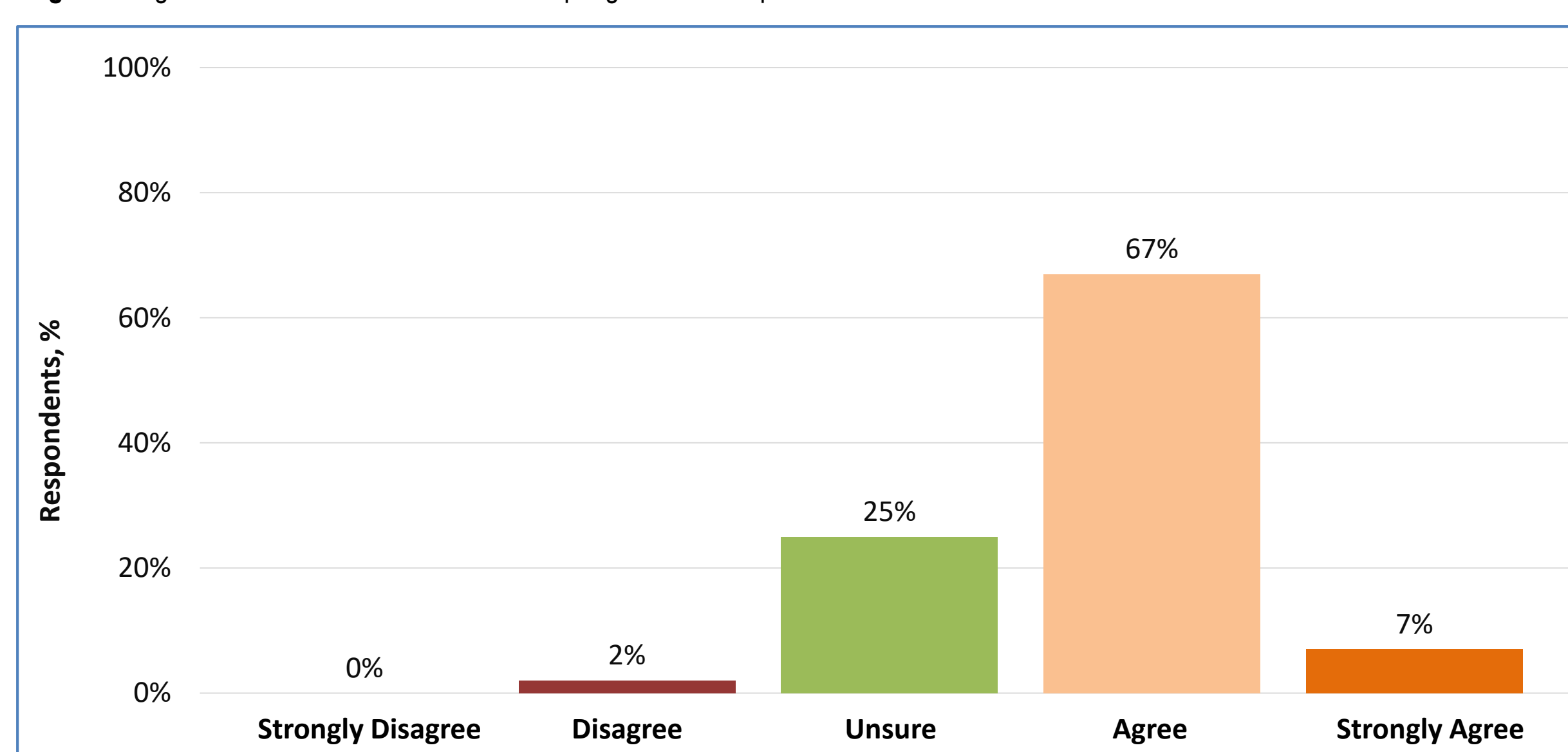


Figure 7. Agreement With the Statement "Macrophages Are an Important Reservoir of NTM in a Host"



DISCUSSION

- Respondents had a high level of general awareness of NTM infection risk in their patients with NCFB
- Aligned with published data,³ respondents estimated a higher risk of NTM infection in patients with NCFB than in patients with COPD
- The clinical impact of NTM-LD was recognized by most respondents, particularly in relation to progressive worsening of respiratory function, increased morbidity, and more frequent hospitalizations; however, only 73% of respondents agreed that NTM-LD was associated with an increased mortality risk, which is consistent with matched-control studies exploring this impact at a population level^{10,12-13}

STUDY LIMITATIONS

- The sample size of the survey was limited; however, we obtained good regional coverage and thus likely achieved a reasonable level of national representativeness
- Information related to the risk of NTM infection was based on respondents' estimates rather than data extracted from medical records

CONCLUSIONS

- Pulmonologists in Italy managing adult patients with NCFB are aware of the association between bronchiectasis and the risk of NTM-LD
- Most respondents (96%) agreed that NTM-LD can lead to severe health consequences, although a minority (10%) did not perceive NTM-LD as contributing to an increased mortality risk
- Most respondents were aware of the biofilm formation of NTM in the airways (70%) as well as the prominent role of macrophages in NTM-LD (74%)

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