

Supplementary materials

Appendix 1 – Scenarios

Scenario n.1

A 73-year-old woman (an acquaintance of yours) arrives in the emergency room reporting the sudden appearance of neck swelling with severe spontaneous pain. During the anamnesis it emerged that the woman suffered from a recent episode of bronchopneumonia. On objective examination, in the border area between the anterior cervical region and the left lateral cervical region, an oval-shaped swelling with a transverse diameter of approximately 3 cm is present. The overlying skin appears slightly erythematous and upon palpation the swelling appears painful, of a hard-elastic consistency, mobile on the underlying planes and only modestly moveable on the superficial ones.

1. On a scale from 1 to 10, how much weight did my emotional state have on the diagnostic evaluation process? (regret dimension)
2. On a scale from 1 to 10, how much do you rate the importance of risk factors? (risk dimension)
3. On a scale from 1 to 10, how concerned would you be about not immediately finding the correct diagnosis? (ambiguity dimension)

Scenario n.2

A 16-year-old boy is brought to the Emergency Department after experiencing the following symptoms for two days: fever, nausea, vomiting, headache, chills, and fatigue. He has had no contact with sick individuals. He underwent a splenectomy at the age of 13 due to traumatic injuries. He has no history of serious illness and takes no medications. His temperature is 39.2 °C, heart rate is 130 bpm, respiratory rate is 14/min, and blood pressure is 110/60 mm Hg. Pulmonary auscultation reveals scattered bilateral crackles. Abdominal examination shows a well-healed midline scar, and the abdomen is well distended on palpation.

Scenario n.3

A 23-year-old woman is brought to the Emergency Department by her friends 30 minutes after the sudden onset of nausea, facial flushing, and chest tightness while eating at a Thai restaurant. She has no known food or drug allergies. She had childhood asthma but has been symptom-free for the last 5 years. Upon arrival, she is diaphoretic and appears anxious. Her body temperature is 37.1 °C, heart rate is 92 bpm, respiratory rate is 20 breaths per minute, and blood pressure is 126/68 mm Hg. Oxygen saturation on room air is 99%. Neck examination reveals erythema; no masses or nodules are palpated. The cardiopulmonary examination is unremarkable.

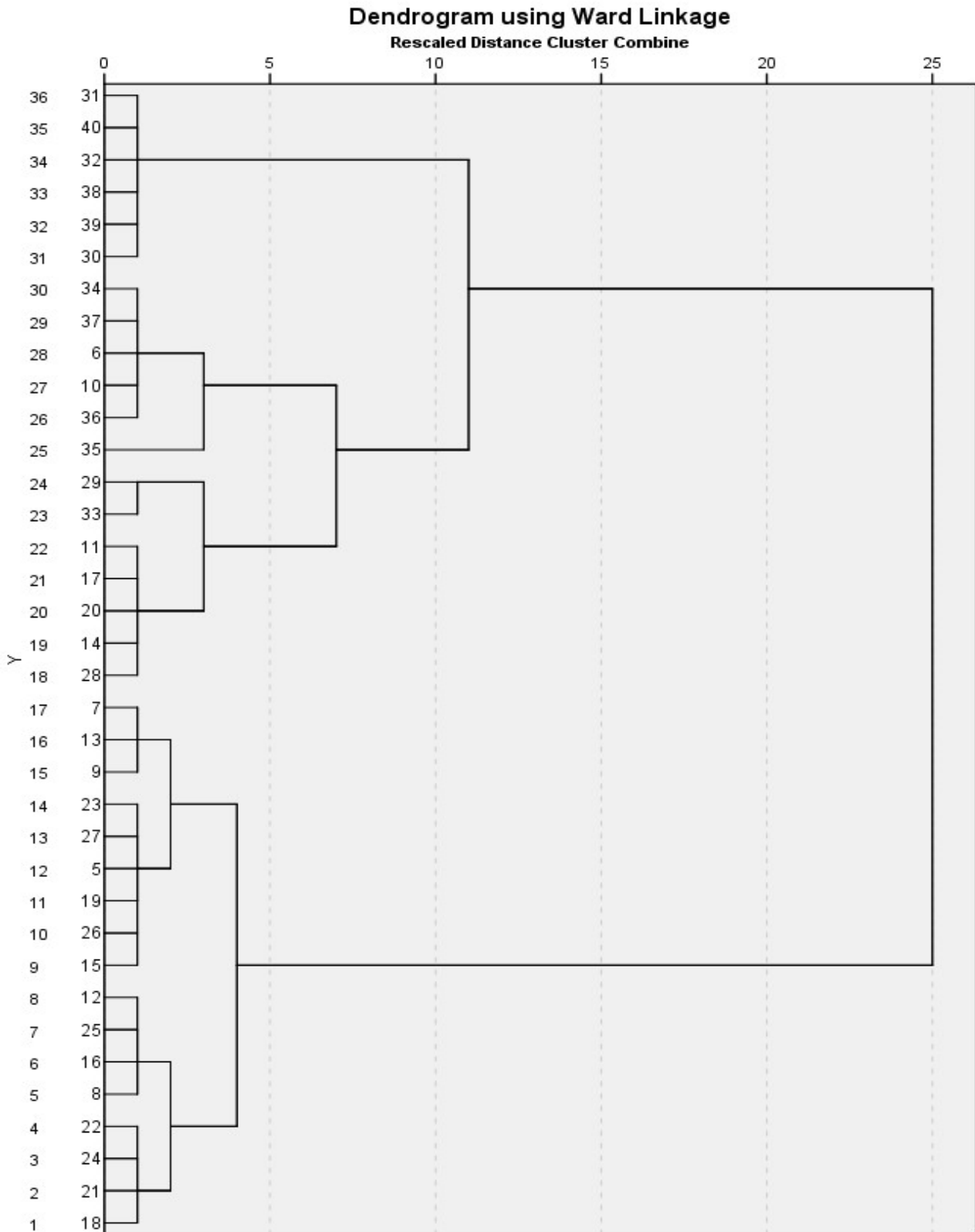
Scenario n. 4

A 35-year-old woman is brought to the Emergency Department due to worsening right knee pain and swelling over the past two days. She has taken paracetamol for the pain, but it has worsened today. She denies any trauma or previous joint problems. Otherwise, she is healthy and currently takes an oral contraceptive. She is sexually active and has a 10-year-old son living with her. She works as a hotel receptionist and mentions that she often has to stand for long periods. She is 160 cm tall and weighs 52 kg (BMI: 20 kg/m²). Her body temperature is 37.9 °C. The right knee is erythematous, swollen, and tender; there is pain with movement. No other joints are affected. A knee X-ray shows an effusion but no structural abnormalities of the joint.

Appendix 2 – The clustering process

The cluster analysis involved examining responses to medical scenarios through answers to specific questions concerning regret, risk, and ambiguity, as detailed in Appendix 1. Visual inspection, using histograms, was employed to assess these responses initially. Subsequently, hierarchical cluster analysis was utilised to confirm the presence of distinct groups within the dataset. Following this initial stage, the k-means algorithm was used to outline and explain the unique characteristics of each identified cluster. The resulting solution was deemed satisfactory, supported by confirmation of the adequacy of the identified clusters based on the distance between final cluster centroids ($d_i^2 = 13.342$). By examining and comparing the distances between the centroids of clusters (which are equal in this case), the adequacy of the cluster solution could be validated. Additionally, the adequacy of the cluster solution was confirmed as only a few outliers were identified ($N = 4$). To further describe the attributes of these clusters, a non-parametric Mann-Whitney U test was conducted. This test utilised the clusters as the independent variable and encompassed all other psycho-cognitive variables (as described in the “Instruments” section) to discern discrepancies between the two groups. Non-parametric testing was preferred due to the imbalance in the two clusters (cluster 1: $N = 23$; cluster 2: $N = 13$).

Appendix 3 - Dendrogram of clusters identified



Note: The number of clusters was determined based on the dendrogram, which shows a clear jump in the distance between successive fusions, supporting the choice of a 2-cluster solution. The 2-

cluster solution was further validated using k-means clustering and Mann-Whitney U tests, which revealed significant differences across key psychological variables. Alternative solutions with 3 or more clusters were explored but did not yield groups that were theoretically meaningful or psychologically interpretable.