

Path Analysis #1

Q1.

The significant relationships on the diagram at 0.05 level are:

1. Obesity → Symptoms (Path coefficient number = 0.283)
2. Symptoms → Functional performance (Path coefficient number = -0.458)
3. Symptoms → Functional capacity (Path coefficient number = -0.606)
4. Functional capacity → Functional performance (Path coefficient number = 0.470)
5. COPD → Symptoms (Path coefficient number = -0.500)
6. COPD → Functional capacity (Path coefficient number = 0.629)
7. COPD → Functional performance (Path coefficient number = 0.268)

Among these 7 relationships, the relationship Obesity → Symptoms is not significant at 0.001 level. All the other 6 relationships are also statistically significant at the 0.001 level.

Q2.

The concepts that have the strongest direct influence on functional performance are:

1. Symptoms (Path coefficient number = -0.458)
2. Functional capacity (Path coefficient number = 0.470)

Q3.

The symptoms (Dyspnea) has a statistically significant (at 0.01 level) negative strong causal effect on the functional capacity (6 minutes-walk test). The performance in the functional capacity decreases due to increase in Dyspnea. The path coefficient number for this relationship is – 0.606

Path Analysis #2

Q1.

Self-efficacy has a statistically significant relationship with the following concepts:

1. Problem-solving (Path coefficient number = 0.51)
2. Self-care behavior (Path coefficient number = 0.55)
3. Patient-provider partnership (Path coefficient number = 0.44)

Q2.

Self-care behavior has the strongest relationship with self-efficacy and the path coefficient number for this relationship is 0.55

Q3.

Self-care behavior has a statistically significant relationship with Mental Component Summary (MCS) and the path coefficient for this relationship is 0.25

Path Analysis #3

Q1.

The concepts that have the strongest direct influence on risky sexual behavior are:

1. Age (Path coefficient number = 0.38)
2. Attitudes against sexual activities (Path coefficient number = -0.35)

Q2.

The concepts that have a significant relationship with Sexual Behavior Refusal Skills are:

1. Knowledge (Path coefficient number = 0.19)
2. Attitudes against sexual activities (Path coefficient number = 0.37)
3. Perceived peer pressure (Path coefficient number = 0.57)

Q3.

Perceived peer pressure has the strongest influence on Sexual Behavior Refusal Skills and the path coefficient number for this relationship is 0.57

Path Analysis #4

In statistics, path analysis is used to describe the directed dependencies among a set of variables. Path analysis is an extension of the regression model. In a path analysis model from the correlation matrix, two or more causal models are compared. The path of the model is shown by a square and an arrow, depicting the causal flow, or the direction of cause and effect. The Path coefficients are similar to the betas (partial correlations) of multiple regression and interpreted in a similar way. The strength of the relationship and sign before the number are interpreted like correlations. The significant relationships among the variables are marked with * (meaning that the p-value of the relationship is less than 0.05) or ** (meaning that the p-value of the relationship is less than 0.001). The strength of the relationship is determined by the magnitude of the path coefficient number for the relationship and the sign of the path coefficient number indicates whether the relationship is positive or negative.

Path analysis is extremely important to nursing practice to monitor the causal effect relationship very precisely among various concepts in medical science. Path analysis will clearly help in analyzing the direct and indirect relationships among several inter-related concepts or variables under study, the path (causal-effect) of these relationships, the strength of these relationships, the kind of causal effect involved (positive or negative) and whether the relationships are statistically significant. These information are contained in the path analysis and are useful in predicting the dependence structure and the regression model.

