**25/07/2022**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Anxiety Scale Classification | | | | | |
| Characteristic | Description | Normal (≤ 7) | Abnormal (> 7) | Total | p value |
| Dialysis | Hemodialysis | 102 (83.6) | 33 (91.7) | 135 (85.4) | 0.228 |
| Peritoneal | 20 (16.4) | 3 (8.3) | 23 (14.6) |
| Total | 122 (77.2) | 36 (22.8) | 158 (100.0) |
| Age (year) | < 50 | 61 (50.0) | 16 (44.4) | 77 (48.7) | 0.558 |
| > 50 | 61 (50.0) | 20 (55.6) | 81 (51.3) |
| **Gender** | **Male** | **66 (54.1)** | **9 (25.0)** | **75 (47.5)** | **0.002** |
| **Female** | **56 (45.9)** | **27 (75.0)** | **83 (52.5)** |
| Employee | Yes | 35 (28.7) | 6 (16.7) | 41 (25.9) | 0.148 |
| No | 87 (71.3) | 30 (83.3) | 117 (74.1) |
| Duration on dialysis | Less than 2 years | 38 (31.1) | 6 (16.7) | 44 (27.8) | 0.060 |
| 2 - 4 years | 42 (34.4) | 10 (27.8) | 52 (32.9) |
| More than 4 years | 42 (34.4) | 20 (55.6) | 62 (39.2) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Binary Logistic Regression Analysis ….B100:F114Anxiety Scale Classification (>7) | | | | |
| Characteristic | Reference | OR | 95% C.I. (LL - UL) | p value |
| Step 1: | | | | |
| Peritoneal Dialysis | Ref. (Hemodialysis) | 0.44 | 0.1 - 1.85 | 0.261 |
| Age (> 50 year) | Ref. (≤ 50 year) | 0.78 | 0.32 - 1.91 | 0.591 |
| **Feminine gender** | **Ref. (Male)** | **3.7** | **1.45 - 9.41** | **0.006** |
| Dependent | Ref. (Employee) | 1.01 | 0.29 - 3.51 | 0.984 |
| Duration on dialysis | |  |  |  |
| 2 - 4 years | Ref. (< 2 year) | 1.14 | 0.36 - 3.63 | 0.822 |
| More than 4 years | Ref. (< 2 year) | 2.53 | 0.87 - 7.31 | 0.087 |
| Step 4: | | | | |
| **Feminine gender** | **Ref. (Male)** | **3.42** | **1.47 - 7.99** | **0.004** |
| Duration on dialysis | |  |  |  |
| 2 - 4 years | Ref (< 2 year) | 1.32 | 0.43 - 4.09 | 0.629 |
| More than 4 years | Ref (< 2 year) | 2.74 | 0.97 - 7.73 | 0.058 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Depression Scale Classification | | | | | |
| Characteristic | Description | Normal (≤ 7) | Abnormal (> 7) | Total | p value |
| Dialysis | Hemodialysis | 98 (84.5) | 37 (88.1) | 135 (85.4) | 0.569 |
| Peritoneal | 18 (15.5) | 5 (11.9) | 23 (14.6) |
| Total | 116 (73.4) | 42 (26.6) | 158 (100.0) |
| Age (year) | < 50 | 58 (50.0) | 19 (45.2) | 77 (48.7) | 0.597 |
| > 50 | 58 (50.0) | 23 (54.8) | 81 (51.3) |
| Gender | Male | 60 (51.7) | 15 (35.7) | 75 (47.5) | 0.075 |
| Female | 56 (48.3) | 27 (64.3) | 83 (52.5) |
| **Employee** | **Yes** | **36 (31.0)** | **5 (11.9)** | **41 (25.9)** | **0.015** |
| **No** | **80 (69.0)** | **37 (88.1)** | **117 (74.1)** |
| Duration on dialysis | Less than 2 years | 33 (28.4) | 11 (26.2) | 44 (27.8) | 0.088 |
| 2 - 4 years | 43 (37.1) | 9 (21.4) | 52 (32.9) |
| More than 4 years | 40 (34.5) | 22 (52.4) | 62 (39.2) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Binary Logistic Regression Analysis ….Depression Scale Classification (>7) | | | | |
| Characteristic | Reference | OR | 95% C.I. (LL - UL) | p value |
| Step 1: | | | | |
| Peritoneal Dialysis | Ref. (Hemodialysis) | 0.98 | 0.3 - 3.22 | 0.973 |
| Age (> 50 year) | Ref. (≤ 50 year) | 0.63 | 0.27 - 1.43 | 0.265 |
| Feminine gender | Ref. (Male) | 1.51 | 0.68 - 3.36 | 0.310 |
| **Dependent** | **Ref. (Employee)** | **3.83** | **1.13 - 12.95** | **0.031** |
| Duration on dialysis | |  |  |  |
| 2 - 4 years | Ref. (< 2 year) | 0.48 | 0.17 - 1.38 | 0.175 |
| More than 4 years | Ref. (< 2 year) | 1.44 | 0.58 - 3.6 | 0.436 |
| Step 4: | | | | |
| **Dependent** | **Ref. (Employee)** | **3.46** | **1.23 - 9.72** | **0.019** |
| Duration on dialysis | |  |  |  |
| 2 - 4 years | Ref (< 2 year) | 0.51 | 0.19 - 1.42 | 0.200 |
| More than 4 years | Ref (< 2 year) | 1.39 | 0.57 - 3.37 | 0.468 |

**Statistical Analysis Procedure:**

All categorical variables such as age, gender, employee, duration of dialysis and HADS scale presented as a frequency. Continuous variables such as depression and anxiety score expressed as median [IQR]. The Kolmogorov-Smirnov test was used to confirm the assumption of normal distribution. If the data was biased, a nonparametric test was used. Pearson chi-square / Fisher's exact test was used to determine significant associations between categorical variables, depending on whether the cell was expected to have an expected frequency of less than 5. A two-sided p-value less than 0.05 was considered statistically significant. All data was entered and analyzed using the SPSS 25 Statistics Package (SPSS Inc., Chicago, Illinois, USA).

***Note:***

*Doctors / Physicians / Researcher and Clinicians sometimes misinterpret statistically significant result as being practically or clinically important. But statistical significance is not the same as practical significance or importance. With the large samples, you can find statistical significance even when the differences or associations are small / weak. Thus, in addition to statistical significance, normally we determine effect size. It is quite possible with large sample, to have a statistically significant result that is weak (i.e. has small effect size). Remember that the null hypothesis is that there is no difference or no association. A significant result with a small effect size means that we can be very confident that there is some difference or association, but it is probably small and may not be practically important.*

**Table 1**. **Demographic and Clinical Characteristics of Patients (n = 158)**

|  |  |  |
| --- | --- | --- |
| Variables | Description | n(n%) |
| Age | < 50 | 77 (48.7%) |
| > 50 | 81 (51.3%) |
| Gender | Male | 75 (47.5%) |
| Female | 83 (52.5%) |
| Employee | Yes | 41 (25.9%) |
| No | 117 (74.1%) |
| Duration on dialysis | Less than 2 years | 44 (27.8%) |
| 2 - 4 years | 52 (32.9%) |
| More than 4 years | 62 (39.2%) |

*Categorical data presented as frequency (%)*

**Table - 2. Descriptive analysis of Hospital anxiety and depression scale (HADS) assessment**

|  |  |  |
| --- | --- | --- |
| Variables | Description | n(n%) |
| (A) I feel tense or ‘wound up’: | Not at all | 43 (27.2%) |
| From time to time, occasionally | 94 (59.5%) |
| A lot of the time | 10 (6.3%) |
| Most of the time | 11 (7.0%) |
| (D)  I still enjoy the things I used to enjoy: | Definitely as much | 54 (34.2%) |
| Not quiet so much | 65 (41.1%) |
| Only a little | 31 (19.6%) |
| Hardly at all | 8 (5.1%) |
| (A) I get a sort of frightened feeling as if something awful is about to happen: | Not at all | 91 (57.6%) |
| A little, but it doesn’t worry me | 47 (29.7%) |
| Yes, but not too badly | 12 (7.6%) |
| Very definitely and quiet badly | 8 (5.1%) |
| (D) I can laugh and see the funny side of things: | As much as I always could | 90 (57.0%) |
| Not quite so much now | 39 (24.7%) |
| Definitely not so much now | 27 (17.1%) |
| Not at all | 2 (1.3%) |
| (A) Worrying thoughts go through my mind: | Only occasionally | 59 (37.3%) |
| From time to time but not too often | 66 (41.8%) |
| A lot of the time | 19 (12.0%) |
| A great deal of the time | 14 (8.9%) |
| (D) I feel cheerful: | Mors of the time | 64 (40.5%) |
| Sometimes | 69 (43.7%) |
| Not often | 18 (11.4%) |
| Not at all | 7 (4.4%) |
| (A) I can sit at ease and feel relaxed: | Definitely | 81 (51.3%) |
| Usually | 36 (22.8%) |
| Not often | 32 (20.3%) |
| Not at all | 9 (5.7%) |
| (D) I feel as if I am slowed down: | Not at all | 23 (14.6%) |
| Sometimes | 82 (51.9%) |
| Very often | 37 (23.4%) |
| Nearly all the time | 16 (10.1%) |
| (A) I get a sort of frightened feeling like ‘butterflies’ in the stomach: | Not at all | 92 (58.2%) |
| Occasionally | 54 (34.2%) |
| Quite often | 6 (3.8%) |
| Very often | 6 (3.8%) |
| (D) I have lost interest in my appearance: | I take just as much care as ever | 87 (55.1%) |
| I may not take quiet as much care | 30 (19.0%) |
| I don’t take so much care as I should | 34 (21.5%) |
| Definitely | 7 (4.4%) |
| (A) I feel restless as if I have to be on the move: | Not at all | 11 (7.0%) |
| Quite a lot | 62 (39.2%) |
| Not very much | 19 (12.0%) |
| Very much indeed | 66 (41.8%) |
| (D) I look forward with enjoyment to things: | As much as ever I did | 72 (45.6%) |
| Rather less than I used to | 58 (36.7%) |
| Definitely less than I used to | 23 (14.6%) |
| Hardly at all | 5 (3.2%) |
| (A) I get sudden feelings of panic | Not at all | 109 (69.0%) |
| Not very often | 36 (22.8%) |
| Quite often | 8 (5.1%) |
| Very often indeed | 5 (3.2%) |
| (D) I can enjoy a good book or radio or TV program | Often | 95 (60.1%) |
| Sometimes | 38 (24.1%) |
| Not often | 16 (10.1%) |
| Very seldom | 9 (5.7%) |
| Anxiety Score | Median [IQR] | 5.50 [8.00 – 4.00] |
| Anxiety Scale Classification | 0 - 7 Normal | 116 (73.4%) |
| 8 - 10 Borderline abnormal | 28 (17.7%) |
| Abnormal | 14 (8.9%) |
| Depression Score | Median [IQR] | 5.00 [8.00 – 3.00] |
| Depression Scale Classification | 0 - 7 Normal | 116 (73.4%) |
| 8 - 10 Borderline abnormal | 19 (12.0%) |
| Abnormal | 23 (14.6%) |

*Categorical data presented as frequency (%)*

**Table – 3: Association between Anxiety scale classification and demographic factors**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Factors | Description | Anxiety Scale Classification | | | *P - value* |
| **0 - 7 Normal** | **8 - 10 Borderline abnormal** | **> 10 Abnormal** |  |
| Age | < 50 | 56 (48.3%) | 15 (53.6%) | 6 (42.9%) | 0.792 |
| > 50 | 60 (51.7%) | 13 (46.4%) | 8 (57.1%) |
| Gender | Male | 63 (54.3%) | 10 (35.7%) | 2 (14.3%) | \*0.007 |
| Female | 53 (45.7%) | 18 (64.3%) | 12 (85.7%) |
| Employee | Yes | 32 (27.6%) | 6 (21.4%) | 3 (21.4%) | 0.738 |
| No | 84 (72.4%) | 22 (78.6%) | 11 (78.6%) |
| Duration on dialysis | Less than 2 years | 37 (31.9%) | 3 (10.7%) | 4 (28.6%) | 0.095 |
| 2 - 4 years | 38 (32.8%) | 12 (42.9%) | 2 (14.3%) |
| More than 4 years | 41 (35.3%) | 13 (46.4%) | 8 (57.1%) |

*Note: Categorical data presented as frequency; \* shows that P-value is significant at P<0.05.*

**Table – 4: Association between Depression Scale Classification and demographic factors**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Factors | Description | Depression Scale Classification | | | *P - value* |
| **0 - 7 Normal** | **8 - 10 Borderline abnormal** | **> 10 Abnormal** |
| Age | < 50 | 58 (50.0%) | 9 (47.4%) | 10 (43.5%) | 0.842 |
| > 50 | 58 (50.0%) | 10 (52.6%) | 13 (56.5%) |
| Gender | Male | 60 (51.7%) | 10 (52.6%) | 5 (21.7%) | \*0.028 |
| Female | 56 (48.3%) | 9 (47.4%) | 18 (78.3%) |
| Employee | Yes | 36 (31.0%) | 1 (5.3%) | 4 (17.4%) | \*0.036 |
| No | 80 (69.0%) | 18 (94.7%) | 19 (82.6%) |
| Duration on dialysis | Less than 2 years | 33 (28.4%) | 4 (21.1%) | 7 (30.4%) | 0.071 |
| 2 - 4 years | 43 (37.1%) | 7 (36.8%) | 2 (8.7%) |
| More than 4 years | 40 (34.5%) | 8 (42.1%) | 14 (60.9%) |

*Note: Categorical data presented as frequency; \* shows that P-value is significant at P<0.05.*

**Log-linear analysis**

|  |  |  |  |
| --- | --- | --- | --- |
| **Dialysis, Anxiety Scale Classification and Age (year) cross tabulation** | | | |
| Dialysis | Anxiety Scale Classification | Age (year) | n(%) |
| Hemodialysis | 0 - 7 Normal | < 50 | 48(30.4) |
| > 50 | 54(34.2) |
| 8 - 10 Borderline abnormal | < 50 | 9(5.7) |
| > 50 | 10(6.3) |
| > 10 Abnormal | < 50 | 5(3.2) |
| > 50 | 9(5.7) |
| Peritoneal | 0 - 7 Normal | < 50 | 13(8.2) |
| > 50 | 7(4.4) |
| 8 - 10 Borderline abnormal | < 50 | 0(.0) |
| > 50 | 0(.0) |
| > 10 Abnormal | < 50 | 2(1.3) |
| > 50 | 1(.6) |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **K-Way and Higher-Order Effects** | | | | | | | |
| K | | df | Likelihood Ratio | | Pearson | | Number of Iterations |
| Chi-Square | Sig. | Chi-Square | Sig. |
| K-way and Higher Order Effectsa | 1 | 11 | 225.846 | .000 | 277.190 | .000 | 0 |
| 2 | 7 | 10.053 | .186 | 7.596 | .370 | 2 |
| 3 | 2 | .147 | .929 | .145 | .930 | 2 |
| K-way Effectsb | 1 | 4 | 215.793 | .000 | 269.594 | .000 | 0 |
| 2 | 5 | 9.906 | .078 | 7.451 | .189 | 0 |
| 3 | 2 | .147 | .929 | .145 | .930 | 0 |
| df used for these tests have NOT been adjusted for structural or sampling zeros. Tests using these df may be conservative. | | | | | | | |
| a. Tests that k-way and higher order effects are zero. | | | | | | | |
| b. Tests that k-way effects are zero. | | | | | | | |

The likelihood ratio chi-square with no parameters and only the mean is 225.846. The value for the first order effect is 10.053

The difference [225.846 - 10.053 = 215.793] is displayed on the first line of the next table. The difference is a measure of how much the model improves when first order effects are included. Significantly small p value (<0.001) means that the hypothesis of first order effect being zero is rejected. In other words, there is a first order effect.

Similar reasoning It’s is applied now to the question of second order effect. The addition of a second order effect improves the likelihood ratio chi-square by 9.906. This is not significant (p=.078). The addition of 3rd order term also did not help, (p = .929).

|  |  |  |  |
| --- | --- | --- | --- |
| **Goodness-of-Fit Tests** | | | |
|  | Chi-Square | df | Sig. |
| Likelihood Ratio | .000 | 0 | . |
| Pearson | .000 | 0 | . |

Log linear analysis suggests that the small value of likelihood ratio R**2** mean it is a good model.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Partial Associations** | | | | |
| Effect | df | Partial Chi-Square | Sig. | Number of Iterations |
| Dialysis\*Age | 1 | 3.001 | .083 | 2 |
| Dialysis\*Anxiety score | 2 | 6.462 | .040 | 2 |
| Age\*Anxiety score | 2 | .524 | .770 | 2 |
| Dialysis | 1 | 87.911 | .000 | 2 |
| Age | 1 | .101 | .750 | 2 |
| Anxiety score | 2 | 127.781 | .000 | 2 |

* This simply breaks down the previous table that we have just looked at into its component parts. So, for example, although we know from the previous output that removing the three-way interactions significantly affects the model. Besides, we don't know which of the two-way interactions is having the effect.
* Keep in mind, though, that regardless of the partial association test, one must return even non-significant lower order terms if they are components of a significant higher order term which is to be retained in the model.
* Thus in the example above, we cannot retain Age, it is non-significant because Age terms in the two-way interactions, Dialysis\*Age and Age\*Anxiety score do not have significant correlation.
* Thus the partial association test suggests for dropping Age from the model.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter Estimates** | | | | | | | |
| Effect | | Estimate | Std. Error | Z | Sig. | 95% CI | |
|  | | LL | UL |
| Dialysis\*Age\*Anxiety Score | 1(8-10) | -.021 | .213 | -.098 | .922 | -.439 | .397 |
| 2(>10) | .130 | .357 | .364 | .716 | -.571 | .831 |
| Dialysis\*Age | 1 | -.155 | .201 | -.773 | .439 | -.549 | .238 |
| Dialysis\*Anxiety Score | 1 | -.175 | .213 | -.821 | .412 | -.593 | .243 |
| 2 | .507 | .357 | 1.418 | .156 | -.194 | 1.207 |
| Age\*Anxiety Score | 1 | .090 | .213 | .422 | .673 | -.328 | .508 |
| 2 | -.053 | .357 | -.148 | .882 | -.754 | .648 |
| **Dialysis** | 1 | .990 | .201 | **4.935** | **.000** | .597 | 1.384 |
| Age | 1 | .028 | .201 | .139 | .889 | -.365 | .421 |
| **Anxiety Score** | 1 | 1.375 | .213 | **6.452** | **.000** | .957 | 1.793 |
| 2 | -.945 | .357 | **-2.644** | **.008** | -1.646 | -.245 |

* Highest absolute value of Z Score Indicate the strongest effect, Dialysis and Anxiety Score are independently bearing significant effect. Moreover; the combined three-way effect and two-way effect are not associated, which are not bearing a significant effect.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step Summary** | | | | | |
| Stepa | | | Effects | Chi-Squarec | Sig. |
| 0 | Generating Classb | | Dialysis\*AGE\*ANXIETY SCORE | 0.000 |  |
| Deleted Effect | 1 | Dialysis\*AGE\*ANXIETY SCORE | .147 | .929 |
| 1 | Generating Classb | | Dialysis\*AGE, Dialysis\*ANXIETY SCORE, AGE\*ANXIETY SCORE | .147 | .929 |
| Deleted Effect | 1 | Dialysis\*AGE | 3.001 | .083 |
| 2 | Dialysis\*ANXIETY SCORE | 6.462 | .040 |
| 3 | AGE\*ANXIETY SCORE | .524 | .770 |
| 2 | Generating Classb | | Dialysis\*AGE, Dialysis\*ANXIETY SCORE | .671 | .955 |
| Deleted Effect | 1 | Dialysis\*AGE | 2.961 | .085 |
| 2 | Dialysis\*ANXIETY SCORE | 6.422 | .040 |
| 3 | Generating Classb | | Dialysis\*ANXIETY SCORE, AGE | 3.631 | .604 |
| Deleted Effect | 1 | Dialysis\*ANXIETY SCORE | 6.422 | .040 |
| 2 | AGE | .101 | .750 |
| 4 | Generating Classb | | Dialysis\*ANXIETY SCORE | 3.733 | .713 |
| Deleted Effect | 1 | Dialysis\*ANXIETY SCORE | 6.422 | .040 |
| 5 | Generating Classb | | Dialysis\*ANXIETY SCORE | 3.733 | .713 |
| a. At each step, the effect with the largest significance level for the Likelihood Ratio Change is deleted, provided the significance level is larger than .050. | | | | | |
| b. Statistics are displayed for the best model at each step after step 0. | | | | | |
| c. For 'Deleted Effect', this is the change in the Chi-Square after the effect is deleted from the model. | | | | | |

The The backward steps summary has detected that; the combined two-way Dialysis\*ANXIETY SCORE is strongly associated, which is also bearing a significant effect.

**In conclusion: Dialysis, are prone to Increases Anxiety Score**