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Statistical Data Analysis

χ²-Test of Independence

1) **Role of Media.** A newspaper reported a study concerning the role of media in the lives of children. In one question of the study, children were asked if they use a computer each day. The results are summarized in the following table:

Age	Use Computer Each Day Yes	No	Total
3 - 8	80	170	250
8 - 13	110	190	300
13 - 15	210	240	450
Total	400	600	1000

At the 0.05 level of significance, is there evidence of a significant relationship between use of computer each day and age of children? Compute the p-value and interpret its meaning.

2) **Chronic Fatigue Syndrome.** The following table shows the result of a randomised, double-blind, placebo-controlled trial examining whether patients with chronic fatigue syndrome improved 6 weeks after treatment with intramuscular magnesium. The group who received the magnesium were compared to a group who received a placebo and outcome was feeling better.

Treatment	Outcome Did not feel better	Felt slightly better	Felt much better	Total
Magnesium	20	80	50	150
Placebo	70	40	20	130
Total	90	120	70	280

Do these data suggest that the magnesium-treated CFS patients have different outcomes to placebo treated patients after 6 weeks of treatment? (Use α = 5%)