Hierarchical Linear Modeling of Psychological Factors that Influence Coping with Low Vision

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PURPOSE

One of the key goals of visual rehabilitation is to improve the level of functioning with regard to tasks that normally rely upon visual information. Individuals with Low Vision need to overcome functional obstacles in their daily lives that are created by their visual loss. However, not all persons affected with Low Vision cope with these challenges equally well.

It is of great interest to the vision rehabilitation community to identify which factors may influence the level of coping with Low Vision. Specifically, not everyone who experiences uncorrectable visual loss chooses to take advantage of rehabilitation services. This may, in part, be influenced by external variables, such as referral patterns, or demographic variables, such as age or health status (see poster # 4115).

Little is known, however, about the relationships among psychological variables that influence coping with Low Vision. The present study examined the degree to which subjective perceptions were consistent with the person and external-demographic factors influence an individual's coping quality when dealing with the challenges posed by living with Low Vision.

METHOD

Over a 14-month period, 381 patients (age 26 - 100) who were eligible for Low Vision services according to the standards of the Quebec Ministry of Health (VA < 20/60, VA > 40 deg), completed the following questionnaires, which have all been validated in English and French:

- Brief COPE: a 28-item questionnaire measuring coping quality (Carver, 1997)
- Visual Functioning Index VF14: a 14-item measure of functional vision (Steinberg et al., 1994)
- Center for Epidemiological Studies Depression Scale: 10-item depression measure (Radloff, 1977)
- Satisfaction with Life Scale: 5-item measure of life satisfaction (Diener et al., 1985)

In addition, demographic variables and patient characteristics were available for analysis:

- Level of Impairment (mild: < 20/40 > 20/200, moderate: 20/200 > 20/400, severe: < 20/400)
- Awareness and/or utilization of rehabilitation services (did not know, knew but did not go, knew & went)
- Age
- Sex
- Living distance from rehabilitation services
- Duration of vision symptoms

A two-level Hierarchical Linear Model (HLM) was employed to predict variability in coping scores. At level 1, within-person variability on coping scores was predicted by psychological variables. At level 2, participant characteristics were entered to predict variability in level 1 parameters.

RESULTS

Level 1

Only scores on the Satisfaction-with-Life Scale were significantly associated with variability in Scores on Coping Quality, whereby better Coping Quality was related to improved Satisfaction.

Level 2

Main Effects

- Individuals who utilized Low Vision Rehabilitation Services reported better Coping Quality.
- Coping Quality was better in individuals who lived further from the service agencies.
- Younger individuals reported better Coping Quality overall.

Interaction Effects

- Coping Quality was poorer for older individuals who had moderate visual impairment.
- Coping Quality was poorer for those who had been impaired more severely for a longer period of time.
- Coping Quality was better for severely impaired individuals who needed to travel further to access rehab.

CONCLUSION

Coping Quality seems to be positively influenced by the utilization of Rehabilitation Services for individuals with Low Vision, in turn, is reflected in improved Satisfaction with Life.

The decrease in Coping Quality among seniors has previously been reported in the context of a study on the effect of Spirituality and coping with Low Vision (Yampolsky, et al., 2000).

Moderate loss was associated with poor Coping Quality, more so than severe or mild loss. This phenomenon may be based on the individuals' attempts to use their remaining vision, with less than optimal success. It may also explain some of the inconsistencies found in the research literature when evaluating the effects of visual impairment on behavioral, social and emotional aspects (Burns, et al., 2002a, 2002b).

The relationship between severity and duration of impairment may reflect the need for follow-up interventions for individuals whose vision has degraded over time after initial services were provided.

The interaction effect of severity and living distance may be based on variations in family support in rural communities where individuals with impairments may still be more integrated, allowing them to cope better.

Further analyses of the data will involve Structural Equation Modeling, in order to disentangle the relationships among the reported variables.

REFERENCES

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