# Predictors of Quality of Life and its Impact on Coping Styles in Stroke Caregivers

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## Abstract

**Introduction:** In developing countries, stroke rehabilitation is conducted by family caregivers. Long-term stroke rehabilitation had impact on certain life domains of caregivers. The aim of the study was to examine predictors of quality of life and impact of quality of life on adopted coping styles.

**Methods:** A cross-sectional community based survey was conducted. 100 stroke family caregivers were purposively selected. WHOQOL –BREF scale and Coping Checklist (CCL) was used to measures quality of life and coping styles in caregivers. Appropriate descriptive and inferential statistics was applied to compute the results.

**Results:** Study findings revealed that there is statistical significant relationship between coping and physical quality of life (r=0.273, $p$<0.05). However, emotional and problem focused coping styles shows a significant positive relationship with overall quality of life (r=0.233, $p$<0.05) and satisfaction to health (r=0.208, $p$<0.05) respectively. Use of denial as a coping style found significant and negative relationship with social (r=-0.318, $p$<0.01) and environment (r=0.397, $p$<0.01) quality of life. Simple liner regression shows that availability of sub caregiver at home ($p$<0.05), family types ($p$<0.05) and caregiver as primary earning member ($p$<0.05) had direct relationship with satisfaction of health in caregivers.

**Conclusion:** Caregiving task is challenging to perform and had negative impacts on different sphere of life in family caregivers. Use of appropriate coping strategies helps to improve caregiver's welfare.

## Introduction

Stroke is a disabling condition need long term rehabilitation for survivors to return to normal independent life [1,2]. It has impact on patient as well as family members. After discharge of the hospital, survivors need assistance of family and relatives to meet activities of daily care. It is evidenced that around 50% stroke survivors discharged with one or other disability needs assistance in rehabilitation phase of life [3,4]. Providing long-term care also had significant negative impact on quality of life in family members. In India, it is traditional and moral obligation to take care sick family member by other family members at home. Likewise, family members take this responsibility to avoid unnecessary and possible emotional, physical and financial consequences [5]. Needs fulfilled by the family member during home care were toileting, positioning, oral and tube feeding, physical cleanliness, assistance in walking and climbing stairs and many more [6]. It was found that assisting or meeting different types of needs of a dependent person for long time is physically and emotionally challenging for the family members [7]. Caring a disabled person for long time had severe impact on quality of life of a family member. Multiple studies find out the factors that had direct impact on quality of life of a caregiver of stroke survivors [7,8]. It is evident that socio-demographic factors and health status had direct impact on quality of life [7]. In a Malaysian study, it is also found that marital status, family income and bed ridden condition of the patient had direct impact on quality of life of caregivers [8].

Long term illness and assisting patient round the clock for meeting different needs is a stressful situation and may threaten the normal defense of physical and mental functioning [9]. Unlikely, sudden unexpected condition and lack of adequate training and education to take care of family member can also perpetuate the state of psychological disorganization. Long-standing disorganization and stress tend family members to adopt new ways to handle the crisis, which can be healthy and unhealthy for the health of the caregiver [10]. A healthy coping

strategy enables caregivers to manage the changes over a period of caregiving time. In India, a very rare and few studies find out the relationship between quality of life and coping styles adopted by the caregivers. Studies revealed that use of positive coping styles intend to decrease burden and subsequently improve outcome and quality of life in caregivers [11]. However, Lazarus and Folkman [12] suggested that use of coping styles cannot be determined straightforward but use of active coping strategies may enable the caregivers to deal the situation after stroke. Avoiding like escaping and running away from the situation can help to lower the stress level [13]. Therefore, we planned a study to find out the relationship of quality of life to coping styles and predictors of quality of life in caregivers of stroke survivors [14].

## Material and Methods

The study was planned and conducted in the month of January-May 2014 at conveniently selected rural community setting, Punjab, India. Since, Punjab states have significantly higher prevalence of stroke and other cardiovascular disorders as compare to other provinces. A sample of 100 family caregivers was selected purposively. Current prevalence of stroke was considered for calculation of sample size for the study. Caregivers who were healthy and more than 18 years of age providing direct care to patient since last month after discharge from the hospital were included in the study. Caregivers who were pregnant and had psychiatric or medically illness or under treatment and refuse to

| Satisfaction with health | B | $sr^2$ | t-value | R | $R^2$-change |
|---|---|---|---|---|---|
| No of family members | 9.644 | 0.286 | 2.241* | | |
| Caregiver primary earning member | 9.389 | 0.276 | 2.192* | 0.541 | 0.293 |
| Sub-caregivers availability | 7.280 | 0.086 | 2.728* | | |
| Note. N= 100; *p < 0.05; Total $R^2$ = 0.293 (29.3%); F value= 1.634; $R^2$=0.293 | | | | | |

**Table 1:** Direct effects of caregiving characteristics on satisfaction with health - Simple linear regression.

| Quality of life | B | $sr^2$ | t-value | R | $R^2$-change |
|---|---|---|---|---|---|
| Family type | 8.474 | 0.221 | 1.989* | | |
| Sub-caregivers availability | 16.494 | 0.188 | 1.508* | 0.438 | 0.191 |
| Note. N= 100; *p < 0.05; Total $R^2$ = 0.293 (29.3%); F value=0.936; $R^2$=0.191 | | | | | |

**Table 2:** Direct effects of caregiving characteristics on quality of life - Simple linear regression.

participate in the study, were excluded from the study. The information was sought with the help of socio-demographic and caregiving characteristics, WHOQoL-BREF version and Coping checklist.

## WHO QoL-BREF Scales

It is a comprehensive list of 26 items to assess the quality of life regarding physical, social, psychological and environmental aspects of the caregivers. Scale consists 4 parts namely; physical (7 items), psychological (6 items), social relationship (3 items), and environment (8 items). The initial two items (Items 1 and 2) measure the overall quality of life and satisfaction to heath respectively. The scale is on continuous scale and getting higher scale in a particular domain indicates good quality of life. The tool was translated in to Punjabi language in the interest of the rural community population with the help of experts in Punjabi language. The reliability of translated tool was confirmed by Cronhback alpha and it came out 0.83. The tool was found reliable for the use of the present study. Concerned authority was contacted for permission before using the tool.

## The Coping Checklist (CCL)

It consists of 70 items which are further divided in 3 broad areas with their sub areas; problem focused (problem solving, 10 items), emotion focused (distraction positive 14 items, distraction negative 9 items, acceptance 11 items, religion/faith 9 items, denial/blame 11 items, and problem and emotion focused (social support, 6 items). Items are scored dichotomously (Yes/No) pinpointing greater use of that particular coping strategy. The checklist was translated to Punjabi language in the interest of the rural population with the help of experts in Punjabi language. The validation also sought with the help of experts in the field of nursing and psychiatry. The validity was confirmed from experts in the field of psychiatry, and psychology. The reliability was calculated by application of test-retest method and it came out 0.71 for this study. A prior permission was obtained to use the tool [15].

## Ethical considerations

A brief proposal of the study was put before Ethical Committee (EC) of the institute to obtain ethical approval. The permission for data collection was also obtained from the competent authorities in the Institutes. Subjects were screened out for their eligibility criteria before approaching to final data collection. The caregivers were interviewed with the help of socio –demographic profile sheet, WHOQoL-BREF and coping checklist. Interview was conducted at hospital and home setting. In hospital, a well-lighted and ventilated room was provided by the concerned hospital authorities. At home, caregivers were requested to sit little far away from patient to avoid any distraction while providing information. It took around 15-20 minutes to conduct one interview. The caregivers were also assured for privacy and confidentiality of the information and been informed to withdraw from the study at any

point of time, in case they wish to do. The data was then transferred into SPSS 23.0 Evaluation Version and was analysed using descriptive and inferential statistics.

## Results

To identify the predictors of quality of life in caregivers, simple linear regression analysis applied. In first regression model was used to predict the satisfaction to health in caregivers. Overall model was non-significant (F=1.634, $p$>0.05). When caregivers' characteristics regressed on satisfaction with health, number of family members ($p$=0.028), caregiver as a primary earning member in family ($p$=0.042) and sub-caregiver availability at home ($p$=0.034) found significantly associated with satisfaction to the heath level in caregivers. Number of family member was strongest predictor with 29% of the variance (Table 1).

A second regression model was built to predict the QoL in caregivers. The overall model was non-significant (F=0.936, $p$>0.05). Socio-demographic and caregiving characteristics were entered into general quality of life aspects of WHOQoL-BREF scale. It represents that family type ($p$=0.039) and availability of sub-caregiver at home ($p$=0.044) found significantly associated with general quality of life (Table 2).

To see the precise effect of personal and caregiving characteristics of caregivers on sub scales of WHOQoL-BREF, third model was developed with multiple regression analysis. The model was found significant for all sub scales of quality of life. All Socio-demographic and caregiving characteristics were entered into each sub scales of WHOQoL-BREF scale. (Table 3) represent that caregiving total time in day has highest contribution for psychological ($p$=0.011) and physical ($p$=0.018) quality of life disturbances with a unique variation of 38.5% and 35.5% respectively. Equally, marital status ($p$=0.021) was also reported true predictor for physical quality of life with a variation of 30.0%. So, we can conclude that quality of life in caregivers of stroke a survivor maintained and influenced by many caregiving characteristics' and is not a result of a single or unique one. (Table 3).

To find the relationship between quality of life and adopted coping styles, coefficient correlation was computed. Findings revealed that emotion focused coping styles have significant positive relationship with psychological (r=0.202, $p$<0.05) and physical (r=0.302, $p$=<0.01) quality of life. It can be interpreted that change in physical quality of life enables caregivers to use more emotion focused coping styles and helps to manage think more psychologically to stay fit for delivering care with same zeal and enthusiasm. Similarly, satisfaction with health (r=0.208, $p$<0.05), social relation (r=0.259, $p$<0.05) and psychological (r=0.286, $p$<0.05) quality of life also found correlated with emotion and problem focused coping styles. However, there is a significant positive relationship was observed between physical quality of life and overall

| QoL sub scales | Predictors | B | β | t-value | R | $R^2$ | $R^2$ change | F-value |
|---|---|---|---|---|---|---|---|---|
| Physical QoL | Employment | 1.154 | 0.258 | 2.159* | 0.576 | 0.335 | 0.335 | 1.191* |
| | Caregiving total time | 0.449 | 0.355 | 2.412* | | | | |
| | Income (Rs/month) | 2.776 | 0.237 | 2.023* | | | | |
| Psychological QoL | Caregiving total time | 0.718 | 0.385 | 2.602* | 0.573 | 0.328 | 0.328 | 1.931* |
| | Marital status | 7.918 | 0.300 | 2.364* | | | | |
| | H/O stroke | 10.272 | 0.226 | 1.898* | | | | |
| Social QoL | Support availability | 6.734 | 0.225 | 1.967* | 0.557 | 0.310 | 0.310 | 1.776* |
| | Relationship with patient | 5.398 | 0.217 | 2.128* | | | | |
| Environment QoL | Duration of stroke | 1.582 | 0.252 | 2.376* | 0.599 | 0.349 | 0.349 | 2.122* |
| | Family types | 4.801 | 0.216 | 2.017* | | | | |
| | H/O stroke | 12.411 | 0.278 | 2.315* | | | | |
| | Accommodation | 8.295 | 0.215 | 2.099* | | | | |

Note- n=100; *p<0.05; all sub scale shows variance range of 31 to 35%

**Table 3:** Predictors of specific quality of life - Multiple regression analysis.

| | Coping Total | Problem focused | Emotion focused | Problem & Emotion focused |
|---|---|---|---|---|
| Overall QoL | 0.176 | 0.084 | 0.141 | 0.233* |
| Satisfaction with health | 0.119 | -0.077 | 0.121 | 0.208* |
| Physical | 0.273** | 0.004 | 0.302** | 0.153 |
| Psychological | 0.196 | -0.089 | 0.202* | 0.286** |
| Social relation | 0.145 | -0.032 | 0.130 | 0.259** |
| Environment | -0.040 | -0.187 | 0.033 | 0.158 |

Note – N=100; QoL- Quality of Life; *p<0.05; **p value<0.001

**Table 4:** Relationship between QoL and coping styles (n=100).

| HRQoL | CCL Sub scales | | | | | | |
|---|---|---|---|---|---|---|---|
| | Problem solving | Distr. positive | Distr. negative | Accep-tance | Religion | Denial | Social support |
| General QoL | 0.084 | 0.241* | 0.120 | 0.069 | 0.045 | -0.139 | 0.233* |
| Satisfaction with health | -0.077 | 0.094 | 0.183 | 0.272** | -0.143 | -0.044 | 0.208* |
| Physical | 0.004 | 0.269** | 0.180 | 0.226* | 0.044 | -.0145 | 0.153 |
| Psychological | -0.089 | 0.199* | 0.147 | 0.397** | -0.071 | -0.145 | 0.286** |
| Social relation | -0.032 | 0.185 | 0.131 | 0.147 | 0.164 | -0.318** | 0.259** |
| Environment | -0.187 | 0.134 | -0.034 | 0.148 | 0.002 | -0.397** | 0.158 |

Note – N=100; QoL- quality of life; CCL- coping checklist*p<.05; **p value<0.001

**Table 5:** Relationship between QoL and Sub scales of CCL.

coping (r=0.273, p<0.05) styles. It can be interpreted that caregivers might have use combination of coping styles to maintain physical health while providing care to survivors (Table 4). Further analysis revealed that social relation (r=318, p<0.01) and environment (r=397, p<0.01) quality of life found significant negative relationship with denial coping styles. It can be interpreted that improved or good quality of life reduces use of denial and enables the caregivers to accept the reality of situation. However, other positive coping styles i.e., acceptance, distraction positive, use of social support revealed a positive significant relationship with different domain of quality of life. It indicates that improvement in quality of life enables the caregivers to use more positive and healthy coping strategies (Table 5).

## Discussion

Caregiving is complex and multidimensional process. Caring a stroke survivor for long-time is a stressful and challenging task for family caregivers. Present study finding reported that family size and types, family earning and sub-caregiver availability at home had direct influence on quality of life and satisfaction to health in caregivers. The regression model explained moderate amount of variance (18% to 27%) in the course of quality of life and satisfaction. However, no studies with similar design are available in India for comparison the findings. Still, in study conducted in Europe by McCullagh et al. [16] reported

that social support availability and family network are independent predictors of quality of life in caregivers. Human is a social being and to meet the different daily needs, and sharing feeling, it is necessary to meet other people in our in around. Likewise, it is also reported in a study [17] that social support had strong correlation with quality of life outcomes in caregivers. Study found that availability of sub-caregivers at home to help in care of survivors is a true predictor of quality of life and satisfaction to health among caregivers. Likewise, study conducted in Brazil by Amendola et al. [18] reported that caregivers who receive help in care from someone at home scored significantly more in social relationship quality of life. It may be that assigning caregiving responsibility for a while will help the primary caregiver to go and meet the friends and colleagues and able to sustain the relationship for the longer time.

Marriage is a need for survival of species but same time a quality marital relationship can also help to overcome lot of psychosocial dysfunctioning. In current study, it is evidenced that quality marital relationship had significant impact on psychosocial life of caregivers. These findings are in line with the previous findings demonstrating satisfaction with social support and marital quality [19-21] Study findings also evident that caring for a stroke survivors for a very long time had negative impact on environmental quality of life aspects. Findings found agreement in a previous study conducted by Ogunlana

et al. [22] which reported that duration of stroke had worse impact on quality of life in caregivers. In terms of relationship between quality of life and coping strategies, findings revealed that good quality of life lead more use of positive coping styles in family caregivers and vice versa. Similar findings reported on studies conducted on family caregivers [23-25].

## Conclusion

Stroke is a family disease and caring a stroke patient is challenging for family caregivers. Long-term involvement of family caregivers in rehabilitation had negative impacts on their life. Use of positive coping styles helps to manage negative changes in their life styles. Study findings also show that certain caregiving characteristics had direct impact on different sphere of quality of life. Focusing on theses caregiving characteristics would help to sustain a better quality of life in order to meet the home needs of the stroke survivors.

## Recommendations

Caregiving is a complex process. Despite government effort and awareness about life styles diseases, it is unfortunate that a very few research has been conducted on caregiving and its impact on different sphere of life of the caregivers. The study recommended research focused on caregiving aspects, impact of caregiving on health of caregivers, and different determinants will be a key to plan a base for successful home rehabilitation. Focus on developing interventions such as visit by family or community health nurses, counselling, hot line services and involvement of family members in treatment plan of survivors will be another good move to understand the caregiving aspects and reduce multiple problem in caregivers.

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