Quality of Life and Independent Living and Working Levels
of Farmers and Ranchers with Disabilities

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Abstract

BACKGROUND:

The status of farmers and ranchers with disabilities has been understudied. Understanding this population's quality of life (QOL) and independent living and working (ILW) levels have the potential to be informative for changes in public policy and service provision.

OBJECTIVE:

To assess QOL levels among farmers and ranchers with disabilities as well as explore a conceptual model of ILW accounting for variance in QOL levels.

METHODS:

Participants ($N = 398$) included farmers and ranchers with varying disabilities. Descriptive information was gathered using the McGill Quality of Life (MQOL) and ILW measures. The MQOL measure produces an objective and comprehensive profile of one's QOL across several domains. ILW was used to account for variance in QOL scores. We also examined whether there were any differences in QOL and or ILW based on type of disability.

RESULTS:

There were no differences in type of disability and QOL levels. The mean QOL level was 5.50 ($SD = 1.67$; $N = 398$). The sample rated support and existential well-being the highest among the QOL subscales, which confounds previous research. Further, age group and ILW accounted for 16.2% of the variance in QOL levels, $p < .001$.

CONCLUSIONS:

With this sample of farmers and ranchers with disabilities, age group and ILW account for significant variance in QOL. Health professionals can use these findings to support and assess improvements in clients' ILW, self-determination, and QOL. Future research is needed to explore further the effects of QOL and ILW in this population.

Key Words: farmers and ranchers with disabilities; independent living and working; quality of life; stress in farming.

Quality of Life and Independent Living and Working Levels of Farmers and Ranchers with Disabilities

Farming and ranching have been one of the most stressful occupations within the past two decades.¹⁻³ Of 130 highly stressful jobs, farming was ranked as the 12th most stressful.⁴ Stressors associated with farming and ranching include the effects of the economic downturn of the 1980s,^{5,6} the 2008 economic recession,^{7,8} work overload, unfavorable weather, and difficulty adapting to new technology.^{2,9,10} Further, unique to farmers and ranchers is the added stress of the agri-family system, which often includes producers, other workers, and the farmer's immediate family members.^{11,12} The agri-family can create tense environments when trying to accommodate both family and business needs.¹³ The multitude of stress factors thus contributes to this population's decreased health and increased potential for occupational injury.^{11,14}

Disability rates resulting from work-related injuries remain steadily high among farmers and ranchers.¹⁵⁻¹⁷ Approximately 288,000 farmers and ranchers with one or multiple disabilities work in U.S. Agriculture.^{16,18,19} Both theory²⁰ and numerous empirical studies^{13,21-23} support the strong relationship between stress and occupational injury among farmers and ranchers. The high prevalence of disability within farming and ranching communities is a major public health concern.^{24,25} Therefore, rural developmental scientists have committed to addressing the stress levels of farm and ranch communities through the assessment of objective and subjective components of quality of life (QOL).

QOL

QOL refers to the physical, social, psychological, and spiritual dimensions of one's wellbeing.²⁶⁻²⁸ As an indicator of wellbeing,²⁹⁻³¹ assessing QOL provides valuable information on how individuals perceive their lives, cope with or overcome obstacles (health-related or not), and

ultimately how they are able to persevere and succeed despite obstacles.^{31,32} Many QOL and other health-related scales have been used to assess the QOL of individuals with physical and intellectual disabilities.³¹⁻³³ However, little has been published on the QOL of farmers and ranchers.

Wing and Wolf³⁴ found low levels of health and QOL among livestock operators and residents in surrounding areas. Fetzner³⁰ assessed the QOL levels of 93 agricultural producers with disabilities and found moderate to low levels. In another study with rural residents who worked on farms and ranches, researchers found lower levels of QOL compared to their urban counterparts.³⁵ Conversely, an early study on QOL levels between urban and farming communities found no differences in QOL between those within farming and more urban settings.³⁶ Huband, Moran, and Wilhite³⁷ conducted a qualitative study on perception of QOL among farmers and ranchers with conditions of aging, chronic health issues, or a disability and inferred high levels of QOL from their responses. In another study, social farming (farming as a leisurely activity) as well as incorporating more farming activities have been theorized to offer a form of community support for urban residents and by extension to increase their QOL.³⁸

We suggest these inconsistent findings are due in part to small sample sizes and varying operational definitions of QOL. Specifically, the majority of studies on QOL perceptions of farmers and ranchers were assessed using subjective measures. The multitude of operational definitions in conjunction with the limited number of published studies on farmers and ranchers with disabilities poses a challenge when comparing results across studies, as well as for selecting a valid QOL measure. Therefore, the present study will add to the breadth of understanding of QOL levels of farmers and ranchers with disabilities by using an objective, reliable, and valid QOL measure.

In addition, farmers and ranchers' independent living and working (ILW) levels are closely related and congruent with their QOL.^{39,40} A couple of studies have focused on quality of living conditions in association with QOL.^{41,42} However, for the purposes of this study, we offer the distinction that ILW involves adapting to one's environment as a means of improving one's QOL more so than physical attributes alone. ILW is composed of daily tasks and strategies that farmers and ranchers use to regain control, power, and independence in their homes and workspaces after acquiring a disability. In addition, the inclusion of ILW is supported by extensive studies that highlight the importance of self-determination—"a self-directed and autonomous behavior" of individuals with disabilities.^{20,43}

The family resilience framework by Rolland and Walsh⁴⁴ provides additional insight into the importance of ILW by asserting that persistent individual, intrapersonal, and interpersonal challenges, such as having a disability or coping with daily hassles, are systemic. One family member's illness, condition, or disability can affect other family members. There are certain key family processes that aid in a family's adaptation and resilience to a crisis. These include but are not limited to attributing a positive meaning to the adversity, facing the adversity with courage, relying on faith and spirituality, maintaining a positive outlook toward the future, being flexible to reorganize or adapt to the challenge/obstacle, using external and internal support resources, and building positive communication.^{44,45} While no research has specifically addressed the relationship between ILW and positive outcomes for farmers and ranchers with disabilities, a handful of studies have found a negative relationship between aspects of ILW and mental and behavioral health issues.^{18,46,47}

In order to extend the literature on QOL, the primary purpose of this exploratory study was to provide information on the QOL and ILW levels of ranchers and farmers with disabilities.

The secondary purpose was to model variance in QOL by using ILW as a predictor. Given the limited findings on QOL levels of farmers and ranchers in previous research, we formulated two research questions:

1. What are the QOL (total and subscale) and ILW levels of farmers and ranchers with disabilities?
2. To what extent do ILW total scores account for variance in QOL levels?

Method

Participants

Participants were part of AgrAbility, a federally funded program by the U.S. Department of Agriculture's National Institute of Food and Agriculture to assist farmers and ranchers with disabilities, e.g. amputation, arthritis, hearing or visual impairment, back pain or injury, respiratory problem, spinal cord injury, joint injury, stroke, cardiovascular disease, multiple sclerosis, or any other physical or cognitive disability. AgrAbility strives to assist individuals and families in production agriculture that face challenges to their productivity, physical and mental health, and QOL.⁴⁸ Data for this study came from pre-surveys, prior to receiving any AgrAbility treatment.

Paper surveys were mailed to approximately 815 new AgrAbility clients in 11 states (Arkansas, Colorado, Kansas, Maine, Nebraska, North Carolina, Oklahoma, Texas, Virginia, West Virginia, and Wisconsin). The sample included 493 participants who completed and returned surveys prior to receiving any AgrAbility services (60.5% response rate). The final analytical sample consisted of 398 participants who completed all items. The sample was mostly male (76.4%) with an average age of 56 years ($SD = 13.9$), slightly younger than the average age of farmers and ranchers in the U.S. (57.1).⁴⁹ See Table 1 for demographic information. Approximately 76.6% were owners or operators on their farms or ranches, and 66.6% reported being full time. Participants' primary agricultural operations were as follows: 33.7% dairy; 26.4% livestock; 21.1% field or grain; 4.3% agribusiness; 3.8% hay; 3.5% other animal; and 7.0% other.

[Insert Table 1 here]

Measures

McGill quality of life (MQOL). This 17-item survey assessed participants' overall QOL level as well as scores on five subscales: physical well-being, physical symptoms, psychological well-being, existential well-being, and support. A sample item included "Considering all parts of my life—physical, emotional, social, spiritual, and financial—*over the past two (2) days* the quality of my life has been: very bad (0) to excellent (10)." Seven items are reverse scored. Subscales are scored individually as well as a total score (mean of the subscales).²⁹ High scores on each subscale indicate high QOL.⁵⁰

We chose the MQOL scale because of its reliability, its focus on health rather than illness, its holistic approach to QOL, its brevity, and its inclusion of existential well-being which is a key issue for people facing life-threatening illnesses, conditions, and disabilities.¹⁸ This scale has been validated with individuals in palliative care²⁹ and individuals with terminal or life-threatening illnesses.^{33,50,51} Using the MQOL with farmers and ranchers with disabilities seemed appropriate because: 1) the sample included those who have both chronic as well as terminal disabilities (see Table 5); 2) the family and work life of farmers and ranchers is deeply interwoven; and 3) the onset and/or progression of an accident, illness, condition, or disability may be considered life threatening by ranchers and farmers as it is correlated with heightened levels of depression.⁵² Cronbach's alphas for our sample ranged from .68 to .91 for the subscales and .81 total. These reliability estimates were comparable to Fetzer's (.77 - .89)³⁰ study of 66 agricultural workers as well as the original study of MQOL (.62 - .81) which was conducted with advanced cancer patients.³³

AgrAbility Independent Living and Working (ILW) survey. The ILW was created by the National AgrAbility Project Evaluation Committee. The six-item ILW assesses how ranchers and farmers perceive their abilities to live in their own homes and operate their farms

and ranches independently (e.g. complete chores, operate/modify machinery, manage the farm or ranch, and access workspaces). A sample item included “I am able to change or modify my machinery in order to accommodate my needs” which was rated from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores represent higher ILW levels. The Cronbach alpha for the present sample was .79.

National AgrAbility Project demographic survey. This survey was administered separately as a requirement of involvement in the federal project. Demographics included State or Regional AgrAbility Project, client’s age (18-96), gender, client’s role on the farm (owner/operator, spouse/partner, dependent adult, child, no longer farming, employee, migrant, seasonal worker, never farmed, planning new agricultural career, or other family member), work status (cf. Table 1) primary agricultural operation (cf. Table 1), primary disability (cf. Table 5), three age groups (young 18-44, middle aged 45-65, and older > 65), and two age groups (younger and older adults combined versus middle-aged adults). The original demographic survey did not include items related to education level, ethnicity, household income, and marital status.

Procedures

AgrAbility team members in each of the 11 volunteer states mailed each participant a cover letter, MQOL and ILW measures, and a stamped self-addressed envelope with an invitation to complete and return the survey. There were no incentives offered for participating in this study and participation was voluntary. Participants could complete the survey independently or have the items read aloud by an AgrAbility team member. University Institutional Review Board procedures were followed related to informed consent and confidentiality.

Data Analyses

QOL and ILW means and frequencies were calculated. Potential differences in QOL and ILW scores by gender, age, and disability were examined using an independent samples *t* test (for gender) and one-way ANOVA (for age and disability). A hierarchical multiple linear regression analysis was used to determine to what extent ILW levels account for variance in QOL levels.

Results

The mean total QOL level was 5.50 ($SD = 1.67$; $N = 398$; see Table 2). Subscale results revealed that the present sample rated support highest ($M = 6.42$, $SD = 2.21$) followed by existential well-being ($M = 6.28$, $SD = 1.97$) and psychological well-being ($M = 5.71$, $SD = 2.40$). Lowest subscale ratings for this sample were physical symptoms ($M = 4.03$, $SD = 2.32$) and physical well-being ($M = 5.05$, $SD = 2.15$). The mean ILW level for the total sample was 18.71 ($SD = 5.29$; $N = 398$).

[Insert Table 2 here]

An independent samples t-test found no gender differences on QOL scores ($P = .151$). However, males scored significantly higher on ILW ($M = 19.37$, $SD = 5.13$) than females ($M = 16.59$, $SD = 5.39$), $t(390) = 4.42$, $P < .001$ (see Table 3). The effect size ($d = 0.54$) is a medium effect size according to Cohen.⁵³

[Insert Table 3 here]

Using a two-way (or Factorial) ANOVA we found that there was also a significant interaction between gender and age group on ILW ($P = .017$) (see Table 4). In the elder group (66-96), the difference between men (19.58) and women (13.36) was much larger than typical ($d = 1.04$).⁵³ Compared to the younger and older age groups, the middle adult group had the lowest QOL mean scores and the highest ILW mean scores. Table 4 also shows that there was a significant mean difference on ILW among the three age groups. The between group differences by age group for ILW total scores are significantly different, $F(2, 386) = 4.21$, $P = .016$. The middle age group mean ILW total score ($M = 19.20$) was significantly higher than that of the young adult group ($M = 17.41$, $P = .016$, $d = 0.36$ which is a medium to small effect size).⁵³

[Insert Table 4 here]

The between groups differences by age group for QOL total scores are statistically significantly different $F(2, 386) = 4.83, P < .008$. The post hoc Games-Howell test, utilized for variables that have unequal variances, shows which pairs of means were significantly different. The middle age group's mean QOL total score was significantly lower ($M = 5.24$) than both the young adult group ($M = 5.94, P = .002, d = 0.04$) which is a small effect size⁵³ and the elder adult group ($M = 5.92, P = .001, d = 0.40$) which is a medium to small effect size.⁵³

Disability-Specific Results

Next we compared mean QOL and ILW levels among the ten groups of primary disabilities. Using a one-way ANOVA we found no statistically significant differences ($P = .256$) on QOL among the ten groups of primary disabilities. Regardless of disability, QOL levels were similar, as seen in Table 5.

[Insert Table 5 here]

However, ILW levels differed significantly among disability types, $F(9, 385) = 4.07, P < .001$. Table 5 shows that mean ILW total scores ranged from 20.75 ($SD = 4.33$) for joint injury to 14.08 ($SD = 5.07$) for spinal paraplegia and quadriplegia. Post hoc Tukey HSD tests indicated that ranchers and farmers with spinal paraplegia and quadriplegia had ILW total scores significantly lower than those with back injury ($P = .029, d = 1.06$, much larger than typical effect size), arthritis ($P = .015, d = 1.30$, much larger than typical effect size), and joint injury ($P = .002, d = 1.50$, much larger than typical effect size).⁵³ Likewise, those with visual impairments had significantly lower ILW total scores than those with joint injury ($P = .036, d = 1.07$, much larger than typical effect size).⁵³ The small cell sizes for paraplegia/quadriplegia and visual impairments are noted. Finally, those with leg and foot amputations had significantly

lower ILW total scores than those with joint injuries ($P = .022$, $d = 1.05$, much larger than typical effect size).⁵³

Multiple regression results

We ran two types of multiple regressions to predict mean QOL levels. First, we ran the simultaneous method to compute multiple regression with demographics (age, gender, work status, age group, and ILW total score). We found that 17.3% of the variance in QOL levels was predicted by the above combination of independent variables. The adjusted R^2 of the variance in QOL levels (17.3%) was lower than the unadjusted R^2 (18.5%). To reduce the number of variables, we used the beta weights and significance values to determine which variables contributed most to predicting QOL levels.⁵⁴ From the combination of variables, ILW total scores had the highest beta (.39). The only other variable that contributed significantly to predicting QOL levels was two age groups (.23).

Second, to investigate how well two age groups (middle age group versus younger and older age groups combined) and ILW level total scores predict QOL levels, we ran the hierarchical multiple linear regression with the two variables with the highest beta weights and significant values. Means and standard deviations are as follows: QOL $M = 5.50$, $SD = 1.67$, $N = 398$; Two age groups $M = 2.78$, $SD = 0.98$, $N = 398$; ILW levels $M = 18.71$, $SD = 5.29$, $N = 398$). When two age groups was entered by itself, it significantly predicted QOL levels, $F(1,396) = 16.96$, $p < .001$, adjusted $R^2 = .04$. However, only 4% of the variance in QOL levels could be predicted by knowing the participant's age group. When ILW level was added, it improved the prediction significantly, R^2 change = .126, $F(1,395) = 59.53$, $p < .001$. Both variables significantly predicted QOL levels, $F(2,395) = 39.50$, $p < .001$, adjusted $R^2 = .16$. The combination of age group and ILW levels predicted 16.2% of the variance in QOL levels. This is

a small effect according to Cohen.⁵³ The beta weights and significance values, presented in Table 6 indicate which variable contributes most to predicting QOL levels. ILW level has the higher beta (.36). Client age group's beta is .24. Both contributed significantly to predicting QOL levels.

[Insert Table 6 here]

To find out if farmers and ranchers with disabilities have generally higher physical, psychological, or existential well-being, we ran a repeated measure ANOVA and three post hoc paired samples *t* tests. Results showed that they had high existential well-being levels ($M = 6.28$, $SD = 1.97$, $N = 398$), lower psychological well-being levels ($M = 5.71$, $SD = 2.40$, $N = 398$), and still lower physical well-being levels ($M = 5.05$, $SD = 2.15$, $N = 398$). All three pairs of means were significantly different ($p < .001$). We also computed a multiple regression with each of the three well-being measures as predictors of ILW. Results showed that the combination of age group and existential well-being is the best predictor of ILW and somewhat better than either psychological or physical well-being, $F(1,385) = 53.75$, $p < .001$, adjusted $R^2 = .15$.

Discussion

This study had two purposes: 1) to fill the gap in the literature by providing descriptive information on the levels of QOL and ILW in a sample of farmers and ranchers with disabilities and 2) to model the variance in QOL using ILW as a predictor. Our sample scored highest on the support subscale followed closely by their existential well-being. The interpretation of this finding is mixed. While some studies showed that farmers and ranchers had high levels of support,^{36,37} others showed that high stress within this population tends to lower levels of available support resources than other less agricultural populations.^{16,17}

A compelling explanation for the high level of support reported in this study may be support received from external resources such as additional family members (agri-family). Although some research has shown agri-families to be a source of stress,^{11,12} these extended family members may be a source of support. In addition, even though our sample had not yet received any AgrAbility services, the anticipated receipt of assistance, along with knowledge and acceptance of services, perhaps bolstered perceived support prior to receipt of services. The support they received thus far (being informed of the services, meeting with AgrAbility representatives, and possibly interacting with other similar individuals with disabilities) could be experiences of preliminary support. Further research is needed with a no-treatment control group. Practitioners should, however, encourage their clients to continue to connect with family, friends, neighbors, professionals, and their agri-family for assistance in adapting to their disabilities.

Existential well-being is both the highest and the best predictor of ILW. The high levels of existential QOL lend support to the proposition that more resilient families contain members who possess transcendent faith or spiritual beliefs.^{44,45} These findings extend understanding of probable qualities associated with farmers and ranchers with disabilities' QOL. However, much

work is needed to further understand the nuances of QOL and its contribution to the family's overall resilience.

The middle age group was statistically lower in QOL and higher in ILW levels than the younger and older age groups. The middle age group contained the national mean age for farmers and agricultural producers within the U.S.⁴⁹ which has been found to be highly stressed.^{2,9,10} With the added stressor of a disability the results support previous literature that found QOL lower in this population. Given the resourcefulness of farmers and ranchers in the face of crises,⁵⁵ it is interesting that the middle age group had higher ILW scores than the other age groups. However, as the majority of farmers and ranchers nationally fall within the middle age group, there may be more diverse support networks available to this population. Further research is needed to test these possibilities. These findings are useful for occupational and physical therapists and AgrAbility teams in targeting areas to address to increase younger and older adults' independent living and QOL levels.

Also noteworthy is that when assessing differences within disabilities, while QOL did not differ significantly across different disabilities, ILW did. Conceptually ILW hones in on the extent of individuals' adaptability to their given circumstances to live and work independently. It can be argued that the findings may be indicative of expected differences across varying disabilities as some individuals with more severe injuries or disabilities (e.g., spinal paraplegia and quadriplegia) have increased difficulty in leading an independent life compared to individuals with less severe injuries or disabilities (e.g., arthritis or joint injury). Based on family resilience theory,^{44,45} an argument can be made that individuals with less severe disabilities are able to utilize more strategies than individuals with more severe disabilities. Also, more resources may be available to individuals with less severe disabilities, supporting resilience

within the family and ultimately impacting individuals' ILW levels. Future longitudinal studies may help delineate these differences.

Related to our second purpose, we found that age group and ILW significantly explained 16.2% of the variance in QOL levels. Still, much of the QOL variance remains unexplained. Further research with comprehensive demographic information is needed with the goal of improving the ability of ILW to explain variance in QOL. Our findings support previous literature that ILW is negatively associated with stress.^{18,46} Despite the dearth of empirical literature conducted on farmers and ranchers with disabilities the results provide a good foundation upon which future studies can build.

As this is the first study to use an objective measure to quantitatively assess the QOL of farmers and ranchers with disabilities, it brings researchers and practitioners closer to understanding best practices in assisting this population. Specifically, the findings provide evidence that health professionals can use to support and assess clients' improvements in ILW, self-determination, and QOL. In addition, the significant differences in ILW increase our understanding about the levels of resilience that exist within this population to thrive despite having disabilities. Farmers and ranchers with disabilities will probably benefit from seeking professionals' recommendations for safe and appropriate assistive technology and from accepting support from family members who empower them to modify their homes, workspaces, and machinery in order to maintain their independent lives.

Limitations

While this study has several strengths, there are some limitations in need of consideration. Most notably this study was cross-sectional, thus limiting our ability to assess longitudinal effects of disability on QOL and ILW levels as well as make predictions about them.

Further research is needed with a no-treatment control group of similar farmers and ranchers who do not receive AgrAbility services to assess their QOL levels along with the influence that AgrAbility may have on changes in QOL levels. While some may argue that generalization of our findings is somewhat limited due to the high number of males in the sample, our numbers are similar to U.S. farming and ranching numbers.⁴⁹

Conclusion

There is great need for increased awareness of the social and cultural influences that affect the perception of farmers and ranchers' QOL as well as their ability to live and work independently. Especially lacking is knowledge on how to improve healthcare and services for farmers and ranchers with disabilities. The results of this exploratory study can be useful in extending knowledge about the QOL levels of farmers and ranchers. Further studies are needed to explore the effects of different disabilities on QOL and to discover the underlying factors affecting ranchers and farmers' QOL, especially those with disabilities.

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Table 1. Demographic Information of Farmers and Ranchers with Disabilities

Characteristics	N (%)	<i>M</i> (<i>SD</i>)	Min	Max
Age	398 (100)	55.96(13.9)	18	96
Missing	0 (0.0)			
Gender				
Males	304 (76.4)			
Females	88 (22.1)			
Missing	6 (1.5)			
Role on Farm				
Owner/Operator	305 (76.6)			
Spouse/Partner	49 (12.3)			
Dependent Adult	17 (4.3)			
Employee	13 (3.3)			
Other	14 (3.5)			
Missing	0 (0.0)			
Work Status				

Full Time	265 (66.6)
Part Time	83 (20.9)
Occasional	30 (7.5)
None	18 (4.5)
Missing	2 (0.5)

Primary Agricultural Operation

Dairy	134 (33.7)
Livestock	105 (26.4)
Field/Grain	84 (21.1)
Agribusiness	17 (4.3)
Hay	15 (3.8)
Other Animal	14 (3.5)
Other	28 (7.0)
Missing	1 (0.3)

Table 2. Total and Subscale QOL Means and (Standard Deviations) for the Present Sample

Subscale	<i>M</i>	(<i>SD</i>)	<i>N</i>
Single Item Scale	5.20	(2.14)	385
Physical well-being	5.05	(2.15)	398
Physical symptoms	4.03	(2.32)	398
Psychological well-being	5.71	(2.40)	398
Existential well-being	6.28	(1.97)	398
Support	6.42	(2.21)	398
Total Score	5.50	(1.67)	398

Table 3. T-Test Comparison of QOL and ILW Farmers and Ranchers with Disabilities by Gender

Variable	<i>N</i>	<i>M</i>	(<i>SD</i>)	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
QOL Total	392			1.44	390	.151	0.17
Males	304	5.57	(1.65)				
Females	88	5.28	(1.72)				
ILW Total	392			4.42	390	.000	0.54
Males	304	19.37	(5.13)				
Females	88	16.59	(5.39)				

Table 4. Analysis of Variance for ILW Level as a Function of Age and Gender

Variable and source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>n</i> ²
ILW Level				
Age group	2	110.89	4.21 ^a	.016
Gender	1	559.38	21.22 ^c	.052
Age group*gender ^d	2	87.90	3.33 ^a	.017
Error	386	26.36		

^a*P* value <.05^b*P* value <.01^c*P* value < .001^dThe “*” indicates the interaction between age group and gender.

Table 5. Descriptive Statistics for ILW and QOL Levels for Ten Primary Disabilities

Disability	ILW Total Scores				QOL Total Scores			
	<i>n</i>	%	<i>M</i>	(<i>SD</i>)	<i>n</i>	%	<i>M</i>	(<i>SD</i>)
Joint injury	59	14.8	20.75	(4.33)	59	14.8	5.20	(1.66)
Arthritis	40	10.0	20.08	(4.47)	40	10.0	5.66	(1.33)
Orthopedic injury	32	8.0	19.59	(4.20)	32	8.0	5.80	(1.65)
Back injury	69	17.3	19.46	(5.09)	69	17.3	5.33	(1.76)
Cardiovascular disease	16	4.0	18.31	(6.17)	16	4.0	4.86	(1.19)
Other infrequent disabilities	119	29.8	18.07	(5.77)	119	29.8	5.52	(1.72)
Stroke	15	3.8	17.67	(4.53)	15	3.8	5.55	(1.55)
Leg & foot amputation	18	4.5	16.00	(5.17)	18	4.5	6.27	(1.67)
Visual impairment	15	3.8	15.87	(5.33)	15	3.8	5.59	(1.99)
Spinal paraplegia & quadriplegia	12	3.0	14.08	(5.07)	12	3.0	5.98	(1.92)

Total	395	99.0	18.73	(5.30)	395	99.0	5.50	(1.67)
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Table 6. Hierarchical Multiple Regression Analysis Summary Explaining Variances in QOL Levels from Two Age Groups and ILW Level (N = 398)

Variable	<i>B</i>	<i>SEB</i>	β	R^2	ΔR^2
Step 1				.04	.04
Two age groups	.35	.08	.20**		
Constant	4.54	.25			
Step 2				.16	.13
Two age groups	.41	.08	.24**		
ILW total score	.11	.02	.36**		
Constant	2.27	.37			

** $p < .001$.