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The Effect of Perceived Level of Social Support on the Fear of Falling

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The Effect of Perceived Level of Social Support on the Fear of Falling

An Honors Thesis submitted in partial fulfillment of the requirements for Honors in the Department of Health Sciences and Kinesiology.

By
Kali Todd

Under the mentorship of Dr. Daniel Czech & Dr. Duke Biber

ABSTRACT

Background: Perhaps the most prevalent cause of anxiety among the elderly is the fear of falling (FOF), considering that a fall can lead to serious complications and decline of health. Kumar et al. found that subjects with a FOF usually have less social support. Therefore, increased social support could possibly decrease the FOF, thus decreasing the likelihood of a fall overall. The purpose of this study is to examine the relationship between the amount of perceived social support one receives and the FOF among people ages 60 and up. **Methods:** In order to measure FOF and social support among participants, the Falls Efficacy Scale-International and the Multidimensional Scale of Perceived Social Support was administered to forty-three individuals ages 60 and older either living in assisted living facilities, independently or with a loved one. Both scales have been shown to be both valid and reliable. **Results:** Overall, this population did not yield significant results for the FOF vs. social support; however, many significant results were found regarding important social and physical factors.

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CHAPTER I: INTRODUCTION

Perhaps the most prevalent cause of anxiety among the elderly is the fear of falling (FOF), considering that a fall can lead to serious complications and decline of health. Specifically, a study in 2009 found that 36.2% of the U.S. population of the time (12.9 million) were either moderately or very afraid of falling (Boyd & Stevens, 2009). Even more shockingly, in 2014 a study found that about one out of four older adults aged 65 and older 28.7% suffered from a fall that year, leading 37.5% of those who fell to seek medical treatment or limit their activity due to injuries (Behavioral Risk Factor Surveillance System, 2014). The mental effect of the FOF can be seriously critical, which makes the FOF one of the main fall predictors (Yu O & Fakiri, 2015). The FOF leads to a vicious cycle that starts with the initial fear or a fall, leads to inactivity because of the fear which then weakens the supporting gait muscles that can eventually lead to a fall, creating an even greater FOF.

As such, it is imperative to find outlets for those suffering from the fear of falling. Kumar et al. (2014) found that subjects with a FOF usually have less social support in community-dwelling facilities. Therefore, increased social support could possibly decrease the FOF, thus decreasing the likelihood of a fall overall. The purpose of this study is to examine the relationship between the amount of perceived social support one receives and the FOF among people ages 60 and up within different living scenarios. In order to measure FOF and social support among participants, the Falls Efficacy Scale-International (FES-I) and the Multidimensional Scale of Perceived Social Support (MSPSS) were administered.

Statement of the Problem

According to many statisticians, falls are far too frequent among the elderly population. Along with falling, many elders experience a fear of falling, even when they have never even experienced a fall. This natural fear can cause decreased activity levels, increased chance for falls, and overall, a lower quality of life.

Statement of the Purpose

The purpose of this study is to examine the relationship between the amount of perceived social support one receives and the FOF among people ages 60 and up. This will determine what role social support plays in the FOF to help us understand its development and potential treatments as well as the prevention of future falls by decreasing one's FOF.

Research Questions

1. Is there a significant relationship between perceived social support and fear of falling?
2. Is there a significant relationship between age and the fear of falling?
3. Is there a significant relationship between social support and living status?
4. Is there a significant relationship between fear of falling and living status?
5. Is there a significant relationship between fear of falling and cane use?

Hypotheses

1. Increased levels of social support will significantly decrease one's fear of falling.
2. As age increases, one's fear of falling will significantly increase.
3. Social support will be significantly greater in individuals living with loved ones than those living in a community-dwelling home or living alone.
4. Fear of falling will be significantly greater in individuals living alone than those living with loved ones or in a community-dwelling home.

5. Individuals using a cane will have a significantly greater fear of falling than individuals without.

Limitations

1. Small sample size
2. Some participants could not fill out the surveys correctly; therefore, those surveys could not be counted.

Delimitations

1. Due to accessibility means, only people in southeast Georgia were surveyed.
2. The survey aimed to study people ages 60 and older either living within assisted living facilities, with a loved one(s), or independently.
3. This survey only measured physical mobility based on the use or non-use of a cane or walker.

Assumptions

1. The participants answered the survey honestly and correctly.
2. All of the data was recorded correctly.
3. All of the data was analyzed and interpreted correctly.

CHAPTER II: LITERATURE REVIEW

The fear of falling is a psychological stress that does not necessarily require a fall to develop; studies have found that other factors such as age, gender, physical health, and economic status contribute to the fear of falling (Vellas et al., 1997).

Social Impact & Activity Restriction

While there are obvious factors that contribute to one's FOF such as decreased muscle strength, other factors can be inconspicuous such as social support. Because those with FOF decrease their activities and thus decrease their social interactions, FOF can have detrimental effects on both the physical and mental health of an individual (Murphy et al., 2002). A large study conducted in 2014 studied factors associated with the FOF in community-dwelling older adults, which found that people with increased perceived social support according to the MSPSS were significantly less likely to have a FOF (Kumar et al., 2014); since this study only observed community-dwelling adults, perhaps different social situations, such as living alone or with a loved one, would yield different results.

The social perspective of FOF also relates to the amount of activities one participates in. Elderly people without FOF were in healthier physical condition than those limiting their activities (Fessel & Nevitt, 1997). Also, relating to mental states, elderly individuals are also at risk for depression and other mental diseases which may affect one's ability to function physically and socially; as such, activity restriction is a common symptom of these mental diseases, so this should also be taken into account when accessing FOF since previous studies have found a positive relationship between poor mental health and FOF (Murphy et al., 2002).

Fall History

An individual's fall history is commonly associated with the presence of FOF. Makino et al. (2017) found that an individual with a fall history is significantly more likely to have a FOF than those without; comparably, a significantly higher prevalence of FOF was found in previous fallers compared to non-fallers. This study correlates with most literature.

Balance and Gait Abnormalities

Gait abnormalities are also very common in the presence of a FOF and are considered fall predictors. Notably, Young and Williams found that FOF increases one's risk of falling due to the automatic response to stiffen the lower extremity during activity, causing an unstable gait (Young and Williams, 2014). The gait pattern of most individuals with a FOF, known as the "phobic" gait disorder, can be described as having a shuffled stride, usually with the need to find support to hold on to because of their fear of falling; this gait pattern is often found in elderly women but has the potential to reverse with the right intervention (Kurlan, 2005).

Some FOF individuals limit their activity to avoid unstable environments, which often leads to declines in psychological and physiological health, thus negatively affects their overall quality of life (Fletcher and Hirdes, 2004). Regardless of fall history, a presence of FOF within an individual has been found to significantly increase their amount of time in double support, slower gait speed, and shorten stride length; however, individuals with a fall history and FOF have even more significant changes in their gait (Makino et al., 2017).

A study conducted in 2015 found that individuals with mobility issues tend to have a higher FOF than those without (Trombetti et al., 2015). As people age, walking

aids (canes, walkers, etc.) are often used to support an individual's gait either so that they can be mobile and participate in social activities (Walker et al., 2010). Walking aids were found to be significantly higher in those with FOF (Kumar et al., 2014).

Even though FOF is not known to be neurologically related, it can often be mistaken for Parkinson's disease since many clinicians are unaware of the capability of this fear to change one's stance and gait cycle (Kurlan, 2005).

Anatomical & Physiological Properties

In reference to the makeup of an individual, there tends to be some anatomical and physiological factors that come into play with FOF. Specifically, muscle properties are vital anatomical factors for the FOF. In 2015, Trombetti et. al accessed sarcopenic muscle properties (physical performance, mass of muscle, power, and strength) to find that each of these independently are risk factors for FOF when decreased; therefore, rehabilitating the muscle groups affected by sarcopenia could decrease one's FOF. Other anatomical features also play a role in the FOF such as bone; a 2014 study from Korea found that individuals with a higher FOF had lower bone densities, which would explain why osteoporosis was significantly for those with a FOF (Park et al., 2014). A higher BMI was also found to be a significant factor for FOF, making overweight and obese individuals at risk for FOF (Kumar et al., 2014).

Gender Differences

In 1994, a study found that women were more likely to report some concern for a FOF (Arfken et al., 1994). Considering significant life factors (age, educational levels, living situations, physical activities, physical health, and psychosocial factors), a study found that men are at a higher risk for falling except for women when suffering from social loneliness (Yu O & Fakiri, 2015); however, regardless of which sex expresses the

most FOF, most studies agree that women are at a higher risk for FOF, making them at a higher risk of falling as well.

Physical Activity & Performance

To cope with the FOF, most individuals opt to restrict their physical activity to decrease the likelihood of a fall (Tinetti & Powell, 1993). In fact, a study conducted in found that women who did not participate in physical activity had a significantly higher amount of FOF (Takehiko et al., 2012). Multiple studies have found an increase in the FOF when accessing physical performance in geriatric populations using the Short Physical Performance Battery (SPPB), which measures the functionality of the lower extremity through a series of physical tests for balance maintenance, strength, and gait speed (Takehiko et al., 2012; Park et al., 2014). These FOF tendencies also seem to withstand cultural and geographical differences; Park et. al (2014) also found that a higher FOF score, accessed by the KFES-I (Korean Falls Efficacy Scale-International), was negatively related to grip strength and positively related to an increase in TUG time, which is another measure of physical performance.

The Effect of Aging

Naturally, instability and cognitive declination are a part of the natural aging process, making age one of the main factors for FOF. Across all literature, the majority agrees that past a certain age (usually 65) the odds of FOF increase tremendously (Scheffer et al., 2008).

Environmental Factors

One of the top predictors of FOF is the environment that they are surrounded by, rather it is in or outside of their residence. Since people with FOF may restrict their activities due to environmental factors, it is imperative to decrease the number of safety hazards. To prevent this discomfort, it is recommended that modifications be made in and around the home to give the individual peace of mind, especially in the comfort of their home. Some of these modifications include adding assistive devices in necessary places such as handrails in the bathtub and by the stairs and ensuring sufficient lighting in every room (Chippendale & Boltz, 2015).

Other Factors

Besides the more obvious relationships regarding FOF, there are other factors that should be considered. For example, a study in 2015 found that individuals with more medications tend to have a greater FOF (Trombetti et al., 2015). Kumar et al. (2014) found that cultural, educational, and economic circumstances should also be considered since the lower the household income and educational level, the higher one's chance for FOF in a community-dwelling setting. Being a part of a minority ethnic group also increased the risk for FOF within community-dwelling living situations.

CHAPTER III: METHODOLOGY

The purpose of this study was to analyze the relationship between perceived social support and the fear of falling (FOF). Chapter 2 provides the need for further investigation of the common descriptors of the fear of falling. In order to measure FOF and social support among participants, the Falls Efficacy Scale-International and the Multidimensional Scale of Perceived Social Support were administered to people living within southeast Georgia.

Participants

The study consisted of forty-three participants but only thirty-three participants met the inclusion criteria, with the majority being female (Female: 27; Male: 6). To be included in this study, the participants had to be above the age of 60 and had to have an awareness of their current psychological and physical status. As long as the patient could write or verbally answer the survey questions, they were assumed to be aware of their current state. Even though most Fear of Falling studies only include people ages 65 and older for their inclusive criteria, the low number of participants for this study called for people ages 60 and older to be included.

Protection of Human Subjects

Approval for this study was obtained from Georgia Southern University's IRB in the fall of 2017. Participation was completely voluntary, and every subject received a brief overview of the purpose of the study. Since names were irrelevant to the use of this study, the subjects were offered complete privacy and confidentiality. Every individual was given the opportunity to decline their participation in this study, and the subjects were informed that they could stop at any point of the study regardless of their reason.

While no incentives were offered, each facility that was visited initially for hand-delivery was revisited with the results once they were available.

Instrumentation

Falls Efficacy Scale-International (FES-I). This 16-item questionnaire assesses an individual's fear of falling (FOF) (Yardley et al., 2005). This scale was recreated by the Prevention of Falls Network Europe (ProFaNE) following the original 10-item scale, which did not include the social dimension measured in the 16-item scale. This scale is useful in measuring within a wide variety of language and cultural settings and includes questions regarding outdoor-related tasks and social activities, making this useful in community-dwelling populations (Yardley et al., 2005). For reliability purposes, the long version of the FES was used with an excellent internal consistency (0.96) and test-retest reliability (0.96) (Yardley et al., 2005). A study in 2011 found the mean inter-item of the FES-I was found at 0.43 (Hauer et al., 2010). This scale was found to be valid when accessing elderly populations that are either healthy or cognitively impaired in some manner, making this scale the best fit for the study (Hauer et al., 2010).

Multidimensional Scale of Perceived Social Support (MSPSS). This 12-item questionnaire was developed in 1988 to measure the amount of perceived social support an individual receives and was found to be both reliable and valid according to its authors (Zimet et al., 1988).

Procedures

The ideal process would have been to obtain surveys through electronic means; and while technology usage has certainly increased among all age populations recently, the hand-delivery option seemed to be a most reliable and reasonable medium for reaching elderly individuals, especially in the local area of southeast Georgia where internet usage is scarce.

Data Collection

To start the hand-delivery process, various local locations were reached out to at the beginning of 2018. Local churches and residential locations were the most reliable and likely places to respond to such request. The primary investigator went to a total of six locations, including four locally-owned assisted-living facilities and two churches. Only one assisted-living facility and the two churches responded to this request. Once every location agreed to have their members and residents participate in the study, the owners and managers signed a letter of cooperation which authorized the primary investigator to come recruit research participants and utilize data from their organization. Once the letter of cooperation was signed by a facility/organization, a date for the primary investigator to come was arranged. On the days of participant recruitment for each facility, printed copies were given to every willing individual to complete which included the following: informed consent, demographic questionnaire, Falls Efficacy Scale-International, and the Multidimensional Scale of Perceived Social Support.

Data Analysis

Forty-three participants consented to participate in the study. Thirty-three participants completed the questionnaires and met the inclusion criteria. Participant demographic information included race, gender, age, cane status, and living status (see Table 1). There were no missing values and no univariate or multivariate outliers were identified. The data were normally distributed based on skewness and kurtosis values (i.e., skew < 3.00 and kurtosis < 10.00; Kline, 2010).

CHAPTER IV: Results

Table 1
Participant Characteristics

Characteristic		Treatment (<i>n</i> = 33)	
		<i>M</i>	<i>SD</i>
Age (years)		77.09	9.64
		<i>n</i>	%
Gender	Male	3	27.30
	Female	8	72.70
Race	White	33	100.00
Cane Status	Yes	9	27.30
	No	24	72.70
Living Status	Alone	13	39.40
	Assisted Living	6	18.20
	With Loved Ones	14	42.40

Correlations were used to examine the relationship between variables of interest. Overall, there was not a statistically significant relationship between fear of falling and perceived social support ($p = .14$). However, there was a significant, strong positive correlation between age and fear of falling ($r = .41, p = .05$). In addition, there was a statistically significant, positive correlations between cane use and fear of falling ($r = .54, p = .05$).

Separate one-way ANOVAs were used to examine differences in social support across living status and cane use (see Table 2). There was not a statistically significant difference in social support between living status (i.e. alone, with loved ones, and assisted living). While not significant, individuals living alone scored the lowest on social support

($M = 6.15$, $SD = 1.32$) when compared to individuals in assisted living ($M = 6.35$, $SD = 0.64$), or living with loved ones ($M = 6.50$, $SD = 1.07$).

Table 2

Means and Standard Deviations for Social Support by Living Status and Cane Use

Variable		Social Support	
		<i>M</i>	<i>SD</i>
Living Status	Living Alone (n = 13)	6.15	1.32
	Living With Loved Ones (n = 14)	6.61	0.40
	Assisted Living (n = 6)	6.39	0.90
Cane Use	Yes	6.62	0.62
	No	6.20	1.22

*Groups significantly different, $p < .05$

In addition, separate one-way ANOVAs were used to examine differences in fear of falling across living status and cane use (see Table 3). While there were not statistically significant group differences in fear of falling ($p = .48$), individuals living alone scored lower in fear of falling ($M = 31.45$, $SD = 12.89$) than those in assisted living ($M = 37.67$, $SD = 18.03$), or with loved ones ($M = 38.04$, $SD = 15.60$). There was a statistically significant difference in fear of falling between cane use ($p = .001$), with individuals using a cane reporting a significantly greater fear of falling ($M = 48.21$, $SD = 12.95$) than individuals not using a cane ($M = 30.56$, $SD = 12.74$).

Table 3*Means and Standard Deviations for Fear of Falling by Living Status and Cane Use*

Variable		Fear of Falling	
		<i>M</i>	<i>SD</i>
Living Status	Living Alone (n = 13)	31.45	12.89
	Living With Loved Ones (n = 14)	38.04	15.60
	Assisted Living (n = 6)	37.67	18.03
Cane Use	Yes	48.21*	12.95
	No	30.56	12.74

*Groups significantly different, $p < .05$

CHAPTER V: DISCUSSION

The main purpose of this study was to determine whether or not a relationship exists between perceived social support and FOF. Overall, there was no statistically significant relationship between the two variables; however, when incorporating other variables such as age, walking aids, and living scenarios, the fear of falling yielded multiple significant results that can be used to inspire future studies.

Since the study only examined individuals living in the rural southeast, residing and socializing in close-knit groups, these results and conclusions can only be based on this population. Perhaps a broader, larger population with varying demographics could lead to different results.

Perceived Social Support

FOF and perceived social support had no significance as Kumar et. al's (2014) findings that found that greater perceived social support significantly decreased one's chance of FOF in community-dwelling facilities; however, the current study's result contradicted Kumar et al. (2014) by finding a positive association. Perhaps the results could have yielded similar results with a greater number of community-dwelling adults included within the current study.

However, this positive association result could relate to Pin & Spini's (2016) finding which found that fall occurrences were a direct predictor of increased social support. Perhaps the FOF is a missing puzzle piece to this finding; maybe a fall is a predictor of FOF and the FOF is a predictor of increased social support, creating a cycle that has never been mentioned. The results from the current study and Pin & Spini (2016) could indicate that excessive social support from a loved one increases one's FOF since they are constantly reminded of the possibility of a fall.

In regard to the three different living scenarios (living independently, with a loved one, or within an assisted-living facility), there was no significant difference in reference to social support. While this is not a significant finding, this still may hold importance. This may indicate that those living alone may still have the capability to venture outside of their home and maintain a social life, or this may suggest that the maintenance of one's social life is not relevant to the FOF.

Gender Differences

Since the population surveyed was not evenly distributed based on gender, no sound statistics were available based on these factors. However, all recent literature is consistent with the finding that women are more likely to have a FOF (Kumar et al., 2014; Scheffer et al., 2008).

Living Status

A study conducted in 2014 found that living alone significantly increased one's odds of FOF (Kumar et al., 2014); however, some previous studies have found that living alone does not have any relationship to the FOF (Park, Yang, & Chung et al., 2017). The results supported that no relationship exists between FOF and different living statuses; in fact, individuals living alone scored the lowest in FOF. These results may indicate that those living independently are able to complete their activities of daily living without stressing over the likelihood of a fall, meaning they are physically capable of living alone. This may indicate that the FOF is heavily based on perception; while individuals living alone certainly have the potential to fall, perhaps FOF relies more on perception of confidence and capability rather than reality. These results are supported by Lee et. al (2018) that found that individuals with a FOF may avoid independent activities, making

them fall into the FOF cycle; therefore, those suffering in this cycle, may already be placed in assisted living or choose to live with a loved one.

Even though there was no significant difference in the relationship between FOF and social support among individuals living alone, with loved ones, or in assisted living, this still could be a great finding for those looking into skilled nursing or community-dwelling homes. Often many people believe community-dwelling facilities are detrimental to one's health, especially regarding fall risks; these results suggest that FOF does not discriminate based on an individual's living situation, but this does not mean one should not explore many living options before making the final decision. For these results to be verified for this population, a greater number of subjects from all different living scenarios should be surveyed.

Aging

Naturally, the results indicated a significant positive relationship between age and the fear of falling, which agrees with most literature (Kumar et al., 2014; Scheffer et al., 2008). These results suggest that fear of falling occurs with the natural aging process and more intervention and treatment should be considered as an individual ages. Since the aging process entails a declination of both cognitive and physical characteristics, this intervention should take both factors into account when treating FOF.

Walking Aids

When comparing cane users to non-cane users, cane users were found to have a significantly greater fear of falling among all living statuses, which confirms past literature that assessed the effect of walking aids in relation to FOF in community-dwelling older adults (Kumar et al., 2014). Potentially, this could mean that cane users rely on a cane for stability and balance based on their FOF. Either these individuals do

not trust their own ability to walk or they have fallen in the past and do not want to repeat a fall.

Even though there was no significant finding between FOF and social support, cane users were found to have a greater fear of falling and reported higher social support. These positively associated results could indicate that while not significant within this population, perhaps cane use is also a predictor for both perceived social support and FOF such as an injurious fall which was found to be a predictor in a previous study (Pin & Spini, 2014).

Future Research

The results did not find a significant relationship between the two main variables: FOF and social support; however, future studies should consider an alternative recruiting and surveying method for a larger sample size, which could yield different results. Since most of the participants were church members or from high-end assisted-living facilities, perhaps using a more general setting or medium for recruitment, such as a doctor's office or the use of a social media form would incorporate a more diverse survey population.

In reference to living status, neither FOF nor perceived social support seems to hold a significant relationship for this population. However, a larger more diverse population should be surveyed to verify these results.

Many demographic and habitual questions were asked for this survey; however, more questions about the individual could give more insight to the participant's living scenario. For instance, Murphy et. al (2002) found that heavy medicinal use, activity restriction, and chronic conditions were linked to the FOF. Perhaps if these variables were examined closer, the FOF and social support could be understood on a deeper, more individual level.

Implications

The main purpose of this study was to find the relationship between perceived social support on the FOF along with additional demographic variables. While the results did not indicate a significant relationship between FOF and perceived social support, a positive relationship was found within this population, indicating that a larger sample population may yield results that infer that excessive social support may increase one's risk for FOF.

This current study verifies that age and FOF hold a significant, strong relationship. As such, it's imperative for older individuals to decrease the likelihood of FOF or a fall by using prevention methods. Consulting your doctor, physical therapy, exercising for muscle maintenance, and decreasing the number of safety hazards in living environments are great ways to decrease the risk of a fall.

Walking aids are essential for unstable people to remain mobile. Since the FOF and the use of walking aids have been found to have a positive significant relationship among all of the living situations, this may indicate that people use canes based on their FOF and not strictly based on physical gait abnormalities. This may also indicate that people using a cane may have to find other alternatives to decrease their FOF.

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