This study employed a “ceasing participation” framework to examine changing leisure activity patterns. Respondents of the Living With Arthritis project were classified into four participation pattern categories. Results confirmed that older adults with arthritis are more likely to experience changes to their activity regimen than older adults without arthritis. A multi-group discriminant function analysis showed that arthritis severity distinguished those who tend to cease activity. Social network and age best distinguished those who quit activities without replacement. Results are placed in the context of coping strategies. Those who do not replace forfeited activities with other activities are least flexible in their response to their chronic condition and face challenges to their well-being.

Key Words: Recreation, Ceasing activity, Coping with arthritis, Severity of arthritis

The Pattern of Change in Leisure Activity Behavior Among Older Adults With Arthritis

Zachary Zimmer, MA, Tom Hickey, DrPH, and Mark S. Searle, PhD

There has been growing interest among researchers interested in leisure behavior on ceasing and starting activity behavior patterns. One framework that has enlightened the discourse has been developed by Jackson and Dunn (1988). These authors classified individuals into one of four activity behavior patterns: quitters, replacers, adders, and continuers. Jackson and Dunn’s framework has been subsequently retested and expanded by McGuire, O’Leary, Yeh, and Dottavio (1989) and Searle, MacTavish and Brayley (1993). Each of these studies utilized general samples ranging in age from younger to older adults. One specific concern of these investigations has been to monitor changes in patterns of activity behavior throughout the life cycle.

Too seldom is research in one area of social science informed by theoretical frameworks developed in other areas, despite the obvious advantages that can be realized by such integration. This study represents an attempt to consolidate the literature in the leisure research field with the gerontological concern of the well-being of older adults. In particular, we apply a “ceasing participation framework” to the leisure activity behavior patterns of a specific subset of the population — older adults with arthritis. Leisure activity has been consistently shown to be a significant determinant of successful aging. Yet, those with arthritis tend to experience increasing losses in physical functioning as their illness progresses. Because of this, those with arthritis are a group at high risk of undergoing changes in their activity behavior patterns. Hence, the activity patterns of this specific subset of the population is an important area of inquiry.

In this study we first replicated the classification of leisure activity behavior patterns formulated by Jackson and Dunn (1988). Next, we attempted to ascertain how the experience of living with arthritis influences this classification. This was accomplished by examining leisure activity behavior patterns as a function of severity of arthritis measures, and then using a multigroup discriminant function analysis to distinguish the characteristics which help to discriminate between types of activity behavior patterns.

Review of Literature

Investigations into patterns of nonparticipation have revealed that there are specific barriers that may act to prevent participation (Jackson, 1983; Jackson & Searle, 1985; Roma & Hoffman, 1980). Hence, an individual may cease an activity due to a change in the opportunities to participate despite a latent desire for that activity. Identified barriers to participation range from demographic and socioeconomic characteristics that predispose an individual to ceasing behavior (Searle & Jackson, 1985) to the availability of leisure resources (Godbey, 1985).

Jackson and Dunn (1988) have developed a framework to assist in the integration of the concepts of ceasing behavior and desires for additional leisure activity participation. According to these authors, participation and nonparticipation reflect a complex set

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of decision-making processes. The essence of their framework is the notion that, despite the barriers that exist, those who cease participation in leisure activity represent two distinct patterns of behavior — those who cease an activity but replace it with another more accessible activity, and those who cease an activity without replacing it. By focusing on both ceasing and starting patterns, it is possible to gain insight into this decision-making process. Hence, a four-category schema of activity behavior patterns was developed. Replacers are individuals who have ceased an activity and have started participating in a new activity. Quitters are those who have ceased an activity but have not started a new activity. Adders are those who have not ceased participation, but have started a new activity. Finally, continuers are individuals who have neither ceased nor started activities.

McGuire et al. (1989) and Searle et al. (1993), have provided elaborations of this framework. The former concentrated on examining changes in patterns of outdoor activity behaviors throughout the life cycle, providing support for the initial framework. By utilizing a discriminant function analysis, the latter provided a set of predictors to assist in the determination of characteristics that predispose an individual toward a particular pattern of leisure activity behavior.

Both studies provide segregated distributions by age groups allowing for comparisons with other age-specific samples. They found an increase in the proportion of quitters and a decrease in the proportion of replacers with increasing age, suggesting a need to know more about changes in and barriers to activity behavior among older adults. A reasonable supposition is that those who cease but fail to replace activities are constrained in their behavior, at least in part, by decreasing functional capacities, which become more prominent at older ages.

Among older adults, one major cause of declining function is the experience of living with arthritis. Arthritis has been associated with decreased quality of life (Burckhardt, 1985; Lerman, 1987). It has been found to affect various dimensions of daily life, including both psychological and physical functioning (Genest, 1983; Husaini & Moore, 1990; Meenan, Yelin, Nevitt, & Epstein, 1981). In general, then, older adults who live with arthritis are a group at high risk of encountering not only limitations in the types of activities they pursue, but overall reductions in their well-being.

The general literature on quality of life among older adults demonstrates the importance of a number of factor's for promoting well-being. These include individual characteristics such as income, marital status, and health status (Doyle & Forehand, 1984; Fengler, Danigelis & Grams, 1983; Kennedy, King, & Muraco, 1983; Lee, 1978). It is also well known that the existence of a strong and intimate social support network influences a multitude of factors related to the quality of life of older adults such as depression, loneliness, and self-esteem (Chappell, 1992; Cohen & Syme, 1985; Duff & Hong, 1982; Gibson, 1986).

Moreover, participation in leisure activities has been shown to be among the most important predictors of well-being among older adults (DeCarlo, 1974; Fly, Reinhart, & Hamby, 1981; Kaufman, 1988; Markides & Martin, 1979). The literature justifying the benefits of leisure on health and well-being is quite rich. In general, activity has been shown to influence well-being through the enhancement of self-esteem, a sense of mental and physical competence, control over one's environment, and empowerment (Iso-Ahola, 1989; Iso-Ahola, LaVerde, & Graefe, 1989). Leisure activity also produces 'flow experiences,' characterized by the enjoyment, absorption and concentration in an activity which both challenges an individual and allows them to lose their sense of time while producing an enhanced awareness of their environment (Csikszentmihalyi, 1994). Social activity, in particular, has been shown to increase both the quality and quantity of social interaction, which, in turn, has important health and mental health influences, and provides the support and companionship necessary to act as a buffer against stressful life events (Berkman & Syme, 1979; Cohen & Syme, 1985; Coleman & Iso-Ahola, 1993; Wallston, Alagna, Devillis, & Devillis, 1983).

Among the subset of older adults who suffer with arthritis, social support has been shown to be a particularly important determinant of well-being (Brown, Wallston, & Nicassio, 1989; Fitzpatrick, Newman, Archer, & Shipley, 1991; Goodenow, Reisine, & Grady, 1990). In terms of the participation in activity, Davis, Cortez, and Rubin (1990) pointed out that few older people with arthritis subjectively rate physical exercise as helpful in reducing pain. They postulate that in order to be effective, an individual needs to experience some self-efficacy through the performance of 'realistic and gradual' activities. Hence, while some have shown exercise to play an important therapeutic role (Harkcom, Lampman, Banwell, & Castor, 1985; Hickey, Wolf, Robins, Wagner, & Harik, 1995; Perlman et al., 1990), others, who have concentrated on the influences of socially oriented activities, have found these to be efficacious and beneficial to emotional well-being (Zimmer, Hickey, & Searle, 1995).

Examining patterns of change in leisure activity behavior may be an important step in understanding the experience of living with arthritis. Past research has demonstrated that coping strategies adopted by arthritis sufferers are associated with a number of factors related to quality of life, including the perception of pain, the extent of disability, and psychological well-being (Beckham, Keefe, Caldwell, & Roodman, 1991; Keefe et al., 1987; Revenson & Felton, 1989). Of particular interest for the present analysis is research by Blalock, DeVellis, Holt, and Hahn (1993), who posited that it is flexible coping strategies that are most successful. In other words, those who adopt a variety of strategies to deal with various aspects of the disease tend to experience superior psychological functioning than others.

Those who experience living with arthritis tend to undergo more frequent and constant changes to their activity behavior patterns than others, often
forfeiting leisure pursuits (Yelin, Lubeck, Holman, & Epstein, 1987). Given the influence of particular types of activity on well-being, such transitions may be detrimental. Considering the literature on coping strategies and the relationship of activity to well-being, it may be most portentous to distinguish between those individuals classified as replacers and those classified as quitters, since reductions in overall well-being are most likely to be experienced by those who are less apt to replace a forfeited activity when physical functioning fails. That is, those individuals who would be classified as replacers given the classification schema developed by Jackson and Dunn (1988) may be the most flexible of copers in terms of their activity patterns, while quitters and replacers may be conceptualized to be on opposite ends of the coping strategy spectrum.

The following analysis represents an attempt to consolidate the framework developed by Jackson and Dunn (1988) with the cited literature on leisure activity and well-being among arthritis sufferers. To do this, we began by examining the distribution of activity patterns among a community sample of older adults with arthritis. The aim was to draw a comparison between the results found in past research that has examined general populations. It was hypothesized that those with arthritis would have a particularly high tendency to cease activity. In addition, they may display a lesser tendency to start a new activity.

Of particular importance, however, among those with arthritis, is to ascertain what characteristics distinguish between and among the categories being examined. We therefore subsequently examined the characteristics that assist in discriminating between the categories of activity behavior. Severity of arthritis, social network, and demographic characteristics were considered as predictors. Reason would dictate that those with more severe arthritis will be the most likely to cease and the least likely to start activities. Hence, these individuals are likely to be classified as quitters. Consequently, the overall hypothesis was that the severity of arthritis will impact upon the change in activity patterns exhibited by those with arthritis.

Methods

The data for this analysis came from the Living With Arthritis (LWA) project, a study designed to document the experiences of older people with chronic arthritis. Respondents were selected from a list of all patients at a community health clinic serving the James Bay area of Victoria, British Columbia. In the spring and early summer of 1993, all older patients who were identified as having arthritis of any type were contacted and asked to participate. Eighty-four percent of those contacted agreed to be interviewed. Data were collected through structured interviews conducted in the homes of respondents.

In total, the LWA sample consists of 189 respondents who agreed to be interviewed. The final sample size for this study, however, was less. Despite the fact that each respondent was identified as an arthritis sufferer based on their clinical charts, twenty-two of the respondents did not believe that they had arthritis. In this analysis, those individuals who reported not having arthritis were eliminated. One additional case was eliminated due to a high volume of missing responses. The final sample for this analysis was 166 respondents. Seventy-four percent of this sample were female, and the mean age was 78. Fifty-five percent of the respondents lived alone, 34% lived with a spouse, and the remainder lived with either a relative or a friend. However, in no case was the household size greater than 2.

As part of the interview, respondents were asked a series of questions regarding their recreational activity patterns. Of particular interest in this analysis were questions that asked, “Can you tell me if there are any leisure activities which you used to participate in regularly but have not participated in during the last twelve months? In other words, have you recently given up any activities?” Similarly, respondents were asked about any activities taken up in the past year. In each instance, respondents could name up to three activities which they have ceased or started. In cases where respondents could name more than three activities, interviewers were instructed to record those activities in which the respondent participated most often. Each individual who ceased participation named an average of 2.1 activities ceased. Those who started participation named an average of 1.5 activities started.

Respondents were coded into one of the four activity behavior patterns developed by Jackson and Dunn (1988) in order to create a classification of activity behavior: replacers have ceased at least one activity, and have started at least one activity; quitters have ceased at least one activity without having started an activity; adders have not ceased any activities but have started at least one; continuers have neither started nor ceased any activities.

As a first step in the analysis, we examined the distributions associated with activity behavior patterns. These distributions are discussed with reference to those found in general samples of older adults. Next, we investigated the characteristics that distinguish between and among these classification categories. The first consideration was the association between the severity of arthritis and activity behavior patterns. Three measures for severity were incorporated in the analysis. First, a measure of physical functioning was constructed by summing the amount of difficulty (on a scale of 1 to 4) experienced when conducting six activities of daily living (ADLs): walking a city block, getting in and out of the bath, getting in and out of bed, going up and down stairs, using the toilet, and getting in and out of a chair. Second, the McGill pain inventory was used to construct a measure of pain associated with the arthritis. The scale constructed from the McGill Pain Inventory adds the scores of twenty items which classify the pain intensity experienced by arthritis sufferers (Melzack, 1975). These items ask respondents to identify words which describe their pain. The more words chosen, and the more severe the descriptions...
of pain represented by the words chosen, the higher the McGill Pain score. The Alpha coefficients for these two measures are .87 and .81, respectively. Finally, a commonly used measure of self-assessed health, frequently employed with the older population, was included. Here respondents were asked to rate their health as excellent, good, fair, or poor in comparison to others their own age. Older adults with arthritis are likely to be faced with a number of health issues related to their condition. Three different measures were considered in the analysis in order to tap the range of health issues faced by older adults with arthritis.

In the next step of the investigation, we conducted a discriminant function analysis in order to help ascertain the determinants of changes in leisure activity behavior. A number of distinguishing variables, in addition to severity of arthritis, were considered. Besides severity of arthritis measures, these discriminating variables represented the domains of social support measures and demographic measures.

Three measures for social support were used in this analysis. First, the Lubben Social Network Scale (Lubben, 1988) was constructed, using 10 items that measure not only the size of the social network (relatives and friends), but the frequency of contact and psychological closeness. This measure provides the extent of the social network. The Alpha for this scale is .69. Second, in order to determine satisfaction with social contact, respondents were asked if the contact they have with friends and family is sufficient. A dichotomous measure for satisfaction was created from this item. This measure may be regarded as a subjective rather than an objective assessment of social interaction. Finally, a dichotomous measure for marital status was included.

The data include several important demographic measures that may predispose an individual toward particular patterns of leisure activity behavior. Age and years of education are continuously measured items. Level of household income is measured on a 13-point scale. Gender is also included in the analysis.

As a final step in the analysis, we found it instructive to examine the specific types of activities in which those with arthritis tend to cease or stop participation. For illustration purposes, we classified all starting behavior for the LWA sample, and the classification distribution of respondents into replacers, quitters, adders and continuers. About 48% of the sample were quitters, 40% were classified as replacers, 7% were adders and only 5% were continuers.

These distributions confirm an entirely different pattern of leisure activity behavior among elders with arthritis than among general samples of older adults. In particular, the proportion who have recently ceased an activity is dramatic. For example, Searle et al. (1993) found less than 40% of those 65 and older had ceased participating in a leisure activity, while McGuire et al. (1989), considering outdoor activities only, found it to be about 22%. Among this sample of arthritis sufferers aged 60 and older, 86% reported ceasing behavior. This result concurs with research by Yelin et al. (1987) regarding the tendency of those with arthritis to forego leisure pursuits. It is clear that arthritis promotes changes in one's leisure experience. How an individual copes with these changes may be an important determinant of their well-being. More importantly, this finding implies that functional limitation plays a critical role in determining changes in patterns of activity behavior. It is quite possible that the majority of those in past studies who were found to have ceased a leisure activity were also those suffering from physical functioning impairments.

Although the vast majority have ceased participation in an activity, it is encouraging to note that many were classified as replacers. Again, comparing this sample to previous samples, a greater proportion of those who ceased an activity have also started some new activity. Searle et al. (1993) for instance, found that only about 12% of all adults 65 and older were classified as replacers. In their sample, about 30% of older adults who ceased an activity replaced the forgone pursuit. In the LWA sample, the proportion was about 46%.

In previous research, a majority of older adults, like those in other age groups, were classified as continuers. This sample of arthritis sufferers, however, presents a very different picture. Only about 5% of this sample neither ceased nor started an activity. Once again, this finding supports the notion of constant and frequent changes to activity patterns among those with arthritis. In addition, there is some evidence that the framework being used to analyze changes in leisure activity behavior in this study does

![Figure 1. Distribution of ceasing and starting, behavior and activity pattern classification.](image-url)
not hold as well among this sample. Since only 12% of the population did not cease an activity, it suggests that among groups with failing physical functioning, adders and continuers may be considered as a single group — that is, those who have not ceased an activity or non-forfeiters.

Finally, among this sample, 47% reported having started a new activity. This is again in contrast to previous research, which has found that the majority of older adults neither start nor cease activities. Only 22% of the Searle et al. (1993) sample who were 65 year’s of age and older started a recreation activity.

For McGuire et al. (1989), only about 8% had reported starting a new outdoor activity. Although a substantial proportion of the LWA sample had started a new activity, most of these individuals were replacers rather than adders. Put another way, the proportion of replacers was high due to the fact that most had ceased an activity. The conclusion that can be reached based on the above distributions is that those with arthritis are likely to be experiencing regular changes to their activity patterns, and they tend to both cease and start activities with greater regularity than general populations of older adults. Those who replace leisure activities they have forfeited may be considered more flexible copers. However, it is also possible that the classification of replacers versus quitters, as well as ceasers and starters are, to an extent, determined by the severity of the arthritis.

Table 1 presents mean severity of arthritis scores for the three measures of severity by ceasing versus non-ceasing behavior, starting versus nonstarting behavior, and by replacing versus quitting behavior. T-tests are used to determine the significance of the associations, and p-values are also presented. For all measures, a higher score indicates more severe arthritis. Interestingly, this table shows that all three severity of arthritis measures were significantly associated with ceasing behavior only (p < .05). For instance, those who ceased an activity had a mean ADL difficulty score of 10.09, compared to only 6.53 for the nonceasers. Those who ceased an activity had a mean McGill pain score of 23.35 compared to 16.60 for others, and the mean self-assessed health score was 2.30 for those who ceased versus 1.90 for nonceasers.

On the other hand, starting behavior, and the distinction between replacers and quitters, are not related to severity of arthritis. None of these associations were significant, and mean scores varied only minimally between categories of severity. As an example, ADL difficulty mean scores were 9.91 for replacers and 10.24 for quitters, a difference of only .33. The p-value for this association was only .60. Contrary to our expectations, this suggests that the determination of whether an older adult with arthritis replaces forfeited activities with others is somewhat more complex than relying on merely the severity of the disease.

Since the severity of arthritis was associated with ceasing activity only in the bivariate analysis, it is likely that other types of behaviors are more a function of other factors. This notion was tested in the multi-group discriminant function analysis, which follows. In order to present a parsimonious model, the initial assemblage of variables was reduced to those that had at least some ability to distinguish between groups on a univariate basis. An F ratio of .20 was used as one of the criteria for inclusion. Using this criterion, satisfaction with contact, income and gender were removed from the final model. In addition, the four-group classification for activity behavior was reduced to a three-group classification, with continuers and adders being collapsed into a single category which we call nonforfeiters. That is, this group represents the 12% of the population who have not ceased any activity. The goal of the discriminant function analysis was to determine the characteristics that can be used to best distinguish between nonforfeiters, quitters and replacers.

Table 2 displays the classification results of the discriminant function analysis. Two significant functions were formed, both with relatively equal explanatory power. The first function, for example, had an Eigenvalue of .15 and a canonical correlation of .36, while the second had an Eigenvalue of .12 and a canonical correlation of .33. Both functions explained a similar proportion of the variance and both were significant based on a chi-square test. Looking at the distances between the group means on the canonical variable allows for a determination of specifically how the two functions distinguished the three patterns of recreational behavior. The first function best distinguished the nonforfeiters from the replacers and quitters. In other words, the first function distinguished between those who did and did not cease an activity. The function mean for the

<table>
<thead>
<tr>
<th>Activity Behavior Classification</th>
<th>Severity of Arthritis Measure</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>ADL Difficulties</td>
</tr>
<tr>
<td>Ceasers</td>
<td>10.09</td>
</tr>
<tr>
<td></td>
<td>(.67)</td>
</tr>
<tr>
<td>Non-ceasers</td>
<td>6.53</td>
</tr>
<tr>
<td></td>
<td>(.81)</td>
</tr>
<tr>
<td>p-Value</td>
<td>.00</td>
</tr>
<tr>
<td>Starters</td>
<td>9.44</td>
</tr>
<tr>
<td></td>
<td>(3.76)</td>
</tr>
<tr>
<td>Non-starters</td>
<td>9.85</td>
</tr>
<tr>
<td></td>
<td>(3.55)</td>
</tr>
<tr>
<td>p-Value</td>
<td>.46</td>
</tr>
<tr>
<td>Replacers</td>
<td>9.91</td>
</tr>
<tr>
<td></td>
<td>(3.54)</td>
</tr>
<tr>
<td>Quitters</td>
<td>10.24</td>
</tr>
<tr>
<td></td>
<td>(3.84)</td>
</tr>
<tr>
<td>p-Value</td>
<td>.60</td>
</tr>
<tr>
<td>Overall mean</td>
<td>9.66</td>
</tr>
<tr>
<td></td>
<td>(3.64)</td>
</tr>
</tbody>
</table>

Note: Standard deviations in parentheses; p-values obtained from t-test of significance.
nonforfeiting group was -.99 compared to positive means (.04 and .25) for the other two groups. The second function can be interpreted as best distinguishing between quitters and those who either do not forfeit or replace forfeited activity. In other words, this function distinguishes between those who have certainly experienced activity losses. This function may also be considered to distinguish between those who are in the least favorable situation, having both given up activities and failed to find new activities for replacement.

Overall, about 50% of cases were classified correctly using this model, although 75% of nonforfeiting were correctly classified. On the other hand, it was most difficult to determine who was likely to be a quitter based on this assemblage of predictor variables since only 41% of these were correctly classified.

Table 3 presents the discriminant function correlations for the predictor variables. Correlations of .30 or greater are most easily interpreted (Tabachnick & Fidel, 1989). Recall that the first function best distinguished between the nonforfeiting and the others who have ceased an activity. Based on the bivariate results presented in Table 1, we would expect severity of arthritis variables to have a substantial influence on distinguishing between these groups. In fact, such is the case. For the first function, a positive score indicates a tendency to not be in the quitter group. The three most powerful predictors were the three severity variables: ADL difficulties, the McGill Pain score and the measure for self-assessed health. The first of these was particularly important, and displayed a correlation of .82. Since the scale for ADL difficulties indicates a degree of mobility and physical impairment, it can be concluded that those with more limited functioning capacity are most likely to be those who cease activity. The second most important predictor was the McGill Pain score. In other words, those who experienced the greatest amount of pain from their arthritis were also those most likely to cease an activity. This result supports the hypothesis that severity of arthritis is associated with activity-ceasing behavior.

The Lubben Social Network Scale also distinguished between nonforfeiting and forfeiters. In this case, those with a stronger social network were more likely to be forfeiters. Although this result is somewhat unexpected, it may be that those with a strong supportive social network more easily move toward new and more easily accessible forms of recreation. Therefore, these individuals are more likely to be in the replacer group, which would explain this finding.

Although Table 1 provided some evidence that the severity of arthritis helps to determine activity-ceasing behavior, it also showed that the task of distinguishing between and among the other categories was more complex. In terms of other activity behavior patterns, severity of arthritis alone could not explain the classification. In fact, the second function, which distinguished quitters from others, appears to rely on a broader set of variables than the first function. Here, a positive score indicates a tendency to not be in the quitter group. The most powerful distinguishing factors were the Lubben Social Network Scale and age. Those who scored higher on the Lubben scale, or those with a larger and more intimate social network, were more likely to be in the replacer and nonforfeiter group rather than the quitter group. Indeed, it is one's social network which, more than anything else, appears to influence the decision to not quit an activity without replacement. This supports the explanation for the findings associated with the Lubben Social Network Scale in the first function, described above.

Also, the greater one's age, the more likely one is to be a quitter. Yet, the relative weakness of the severity measures in distinguishing quitters from others also suggests that it is not the severity associated with advancing age that influences behavior.
Again, we conclude that those with arthritis are capable of replacing activities lost regardless of the severity of their disease. However, those who are older tend to be less inclined to do so.

Education and marital status also had substantial influences on distinguishing between quitters and others. Those with more education and married individuals were less often quitters. Those with higher education likely have the resources necessary to replace activities lost, and are likely to be more knowledgeable about the pursuit of alternate activities. Marital status acts as an additional social network factor since a spouse may tend to urge an individual on to new activities. Finally, ADL difficulties had some influence on distinguishing between quitters and others as well. The higher the ADL difficulty score, the more likely one is to be a quitter. However, this influence was greatly overshadowed by the influence of the demographic and social network variables included in the model.

In summary, the discriminant function analysis suggests that there are characteristic similarities between forfeiters and nonforfeiters, and between those who are quitters versus those who are replacers or nonforfeiters. In the first instance, the severity of arthritis is the best distinguishing characteristic. In the latter instance, there is a broader set of social network and demographic characteristics which distinguish between the two groups.

Our final step in the analysis was to examine whether there are patterns to the specific types of activities ceased and started by respondents. An examination of the data suggests that respondents were more likely to cease a physically active pursuit and start a physically passive one than the reverse. About half of the activities ceased were physically active ones, while only about one-third of the activities started were physically active. The ratio of physically passive to physically active activities was about 1:1 for activities ceased, but was 2:1 for activities started.

Table 4 clarifies the association between the type of activity ceased and type of activity started. These probabilities simply represent the proportions who fall into the various categories of activities started. Those who have ceased physically active activities only have a slightly higher probability of starting physically active activities than others, while those who have ceased physically passive activities only have a slightly higher probability of starting physically passive activities than others. These differences are small and statistically insignificant. For instance, the probability of replacing forfeited activities with physical but not passive ones is .143 for those who have ceased physically active activities only. This probability is .100 for those who have ceased passive activities only, and .125 for those who have ceased both physical and passive activities. Also, those who replace activities most often do so with physically passive ones, regardless of the type of activity ceased. These results indicate that, indeed, arthritis sufferers tend to move increasingly toward more physically passive types of activities.

Discussion and Conclusion

This study focused on the application of a framework developed within the leisure research field to evaluate leisure activity behavior patterns. In this case, the framework was applied to a subset of older adults who suffer from arthritis. The results verified that older adults with arthritis undergo frequent changes in their activity behavior. A much higher proportion of respondents reported both activity ceasing and -starting behavior than has been observed in previous examinations of older populations. As such, a high proportion of this population were categorized as replacers and quitters. That so few elders report not forfeiting any leisure activity over the past year suggests that ceasers tend to overwhelmingly be those who suffer from increasing difficulties in physical functioning. Indeed, we have demonstrated a strong association between severity of arthritis and activity-ceasing behavior. It also suggests that the four-category classification employed in this analysis is less suited to those with increasing challenges to their physical functioning. Instead, a three-category schema, combining adders and continuers into a single group of non-forfeiters, appears at least equally appropriate.

Given the high probability of ceasing activity, it is nonetheless revealing that many ceasers replace activities lost. According to Verbrugge (1990), social disability can be conceived of as a gap between one’s ability and the demands of the environment. Such conceptualizations may help to explain the very high rates of activity replacement among those who suffer from arthritis. As arthritis flares, an individual is likely to replace one demanding activity with one that is more passive; in other words, they may be matching their abilities with the demands of the environment.

We hypothesized that severity of arthritis would be an important determinant of patterns of leisure activity behavior. This supposition was only partly confirmed. Bivariate analyses demonstrated that severity of arthritis is associated with the tendency to cease activity only. Insignificant results were found between all severity measures and starting behavior. The association between severity and replacing or quitting behavior was also indeterminant. The importance of severity measures on activity-ceasing

Table 4. Probabilities of Type of Replacement Activity by Type of Activity Ceased

<table>
<thead>
<tr>
<th>Replaced With</th>
<th>Physically Active Only</th>
<th>Physically Passive Only</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physically Active Only</td>
<td>.143</td>
<td>.100</td>
<td>.125</td>
</tr>
<tr>
<td>Physically Passive Only</td>
<td>.262</td>
<td>.275</td>
<td>.266</td>
</tr>
<tr>
<td>Both</td>
<td>.024</td>
<td>.100</td>
<td>.078</td>
</tr>
<tr>
<td>Neither</td>
<td>.571</td>
<td>.525</td>
<td>.531</td>
</tr>
</tbody>
</table>

Note: Chi-square = 2.31; 6 df, p < .89.
behavior only was underscored in the discriminant function analysis. The discriminant function analysis also showed that quitters tend to be older respondents who have a smaller and less significant social network. They also tend to have less education, be unmarried, and have more mobility difficulties.

It is quite encouraging that severity of arthritis was not strongly associated with activity-starting behavior. It implies that elders with arthritis need not remove themselves from the pursuit of activity when physical functioning fails. It also implies that the strategies that individuals adopt for coping with arthritis are a function of other factors, such as demographic characteristics like age and education, and social network characteristics, such as the size of one's immediate network. These characteristics could determine barriers and access to recreational pursuits. For example, the larger one's network, the more exposure one may have to alternative activities and the more outside support one is likely to have urging participation in new activities. The higher one's education, the greater awareness one may have regarding recreational options.

Those who experience more pain and those whose physical functioning becomes limited due to their chronic illness may be more at risk of withdrawing from a number of aspects of regular daily life, leisure activity being one. Because they change activity patterns often, arthritis sufferers are vulnerable to the negative impacts that may accompany activity-ceasing behavior. This includes loneliness, isolation, and boredom. Although this is an unsatisfactory transition, it does not appear to be inevitable. Our evidence indicates that many older adults with arthritis replace activities forfeited with more passive leisure pursuits, such as creative or socially oriented activities. There are reasons to believe that such transitions may not be overly harmful to the psychological well-being of arthritis sufferers. First, we can assume that replacers are more flexible copers, who, according to Blalock et al. (1993), experience the least negative impacts to well-being. Second, according to Zimmer et al. (1995), physical activity plays a minimal role in the maintenance of emotional well-being, while social activity is more consequential.

The benefits of social support have been well documented for all older adults (Cohen & Syme, 1985), and among those who suffer from chronic ailments such as arthritis (Brown et al., 1989; Fitzpatrick et al., 1991; Goodenow et al., 1990). Support has been shown to impact on a number of aspects of quality of life. To this, the present study adds its positive influence on the change in leisure activity behavior patterns. The results of this study suggest that, given the supports, elderly people with arthritis can be encouraged to replace lost activities, which may have substantial implications for their quality of life.

To summarize, the distinction between quitting and replacing may be particularly important for demarcating differences in coping strategies. Those who do not replace activities lost may be those who are least flexible in their response to their chronic condition. These individuals probably face the greatest challenges to their well-being. On the other hand, despite being forced to give up an activity, replacers are those who strive to remain engaged. They often replace a physically active pursuit with one that is more physically passive, yet they undergo fewer total losses to their activity agenda.

This study has added to the literature on activity and the well-being of older adults with arthritis by implementing a specific framework to examine activity-ceasing and -starting patterns. It also suggests additional problems which could form the basis of future research in this area. For example, when inquiring about activities ceased and started, the present study did not determine whether there was a change in the frequency of participation. Therefore, one weakness of this analysis is an inability to determine the influence of altering degrees of participation. It is possible that a reduction, as well as a complete cessation of activity, represents an additional method of coping with increasing physical functioning difficulties. It is suggested that future testing could benefit from the addition of a frequency of participation component to the ceasing participation framework.

Leisure activity is an important instrumental activity of daily living. As such, it has an impact on an older adult's independence and psychological well-being. Therefore, we also suggest that future studies may also seek to better understand the social psychological variables that distinguish replacers from quitters.

Baltes and Baltes (1990) have postulated a model that they call "selective optimization." In their model, older adults select activities which they can perform best, direct their energies to that activity (what they refer to as optimization), and then learn how to adapt the activity or improve their performance through additional knowledge, training, nutrition, or whatever is required (the compensatory element of their model). Such individuals are likely to feel more in control of their life, or at the very least, their leisure lifestyle. Replacers, as they are conceptualized in this analysis, may be consistent with those individuals who optimize and adapt their activity. However, future studies should ascertain whether the selective optimization with compensation process articulated above does operate for older adults with arthritis and whether feelings of control are an important determinant of the decision to replace or simply to quit.

Another aspect of future research could consider how those who are identified as quitters could be encouraged to re-engage in personally satisfactory leisure. Searle, Mahon, Iso-Ahola, Adam Sdrolias, and Van Dyck (1995) have recently demonstrated, using field experimentation, that an intervention designed to enhance leisure functioning does have important benefits for psychological well-being and a sense of independence. A subsequent follow-up of the subjects showed that the original effects generalized to improvements in a measure of general control. This effect over time may result from older adults practicing specific strategies they have learned that assist them in dealing with their leisure behav-
ior, and transferring this knowledge to other life domains. In this way, a learning effect may occur (Searle, Mahon, Iso-Ahola, & Adam Sdrolias, 1995). Thus, those older adults with arthritis who tend to quit rather than replace activities may be suitable candidates for such interventions.

References

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