The Contribution of Self-efficacy, Social Support and Participation in the Community to Predicting Loneliness among Persons with Schizophrenia Living in Supported Residences

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Abstract. The purpose of this study was to examine the contribution of self-efficacy, social support, social participation, living arrangement, and employment status to predicting loneliness among 97 individuals (over age 18) who were diagnosed with schizophrenia and lived in supported residences within the community. Method. Participants responded to five self-report questionnaires: a socio-demographic questionnaire, the UCLA Loneliness Scale, the General Self-Efficacy Scale, the MOS Social Support Survey, and the Participation and Use of Services in the Community Questionnaire. Results. Social support, participation in the community, and living arrangement emerged as significant predictors of loneliness: the higher the participants’ levels of social support and participation in leisure and social activities in the community, the lower their levels of loneliness. In addition to these findings, participants living in semi-independent and independent apartments felt lonelier and reported higher levels of social support and social participation in the community than their counterparts living in group homes. Practical implications for mental health professionals and caretakers are discussed.

Over the past 30 years, the United States and other westernized countries, including Israel, have witnessed major changes in the forms of residential care provided to people with mental illness. Deinstitutionalization and the development of supported residences have resulted in growing numbers of individuals with persistent mental health problems returning to the community (1, 2). Despite concerted attempts by mental health professionals to guide these people and place them in suitable living and employment settings, many of them still find life within the community a constant struggle (3, 4).

Research conducted among persons with severe mental illness living in the community has revealed that more than half of them complain of loneliness (5). This is particularly true of those with schizophrenia, the most prevalent psychiatric disorder among people with mental illness living in supported residences (6). An understanding of the factors that contribute to loneliness among these residents is important for improving their quality of life.

Loneliness Among Individuals with Schizophrenia

Loneliness is related to an individual’s unpleasant experience within a qualitatively or quantitatively inadequate social situation or network (7). This experience is particularly prevalent among individuals with schizophrenia, as deficiencies in certain social and personal functioning skills are one of the most prevalent features of that disorder (8, 9). Researchers have found that these deficiencies are generally the result of both biophysical and environmental circumstances (10). Individuals with schizophrenia have structural brain impairments that cause deficiencies in basic cognitive processes, such as information processing, memory and abstraction, which are all significantly related to social competence (8, 10–12). Regarding the environmental circumstances, social and developmental skills,
which have been found to be significantly related to suitable social functioning in the community, are generally learned in childhood and early adulthood. Among persons with schizophrenia, aside from the impaired brain functioning, the young individual’s ability to master essential social skills and judgement may also be affected by negative reactions from the environment to certain awkward behaviors related to the illness. Subsequently, the individual’s level of social functioning may well be related to his or her life before the onset of schizophrenia (8, 10).

However, lack of basic social skills and judgement are only some of the difficulties that have a negative impact on the social lives of individuals with schizophrenia. The stressful toll of positive symptoms such as hallucinations, delusions and thought disorders on individuals with schizophrenia, as well as adverse side effects of medication and institutionalization, such as lack of energy and motivation, and in some cases unkempt appearance and lack of hygiene, are all causes for loneliness, alienation and estrangement as described by many persons with schizophrenia (3, 4).

Other aspects of loneliness are alienation and feelings of exclusion. In this regard, individuals with schizophrenia have described responses such as lack of acceptance, outright rejection and stigmatization in the community (3), accompanied by a sense of not belonging to the mainstream of society.

An understanding of the factors that contribute to loneliness among persons with schizophrenia is important, since lowering the level of loneliness might reduce and even prevent re-hospitalization and crisis, in addition to improving the individual’s general health and quality of life (9, 13).

The present study examined loneliness among individuals with schizophrenia living in the community in relation to self-efficacy as an internal resource, social support as an external resource, and social participation in the community, living arrangement, and employment status as environmental resources.

**Loneliness and Self-efficacy**

Self-efficacy represents an internal resource, a psychological factor that is embodied within the individual (14). Self-efficacy refers to a person’s perceived capability, as distinct from functional ability, to perform a particular action or course of action. Self-efficacy theory asserts that functional capacity alone is insufficient to generate a desired behavior (15). An individual’s thoughts, emotions and actions before and during a particular event are influenced by the person’s judgement of his or her abilities, whether or not that judgement is correct. Judgements of self-efficacy also influence the amount of energy that individuals are willing to invest in overcoming certain obstacles. Those with a strong sense of self-efficacy will often try harder than those with doubts. Furthermore, research has shown that higher levels of perceived self-efficacy lead to a progressive increase in performance (15–17). Unfortunately, many of the effects of schizophrenia, such as cognitive deficiencies, poor assertive and interpersonal relational skills, or a limited sense of direction in one’s life, all contribute to reduced feelings of efficiency and competence (18). There is a strong association between negative symptoms (e.g., affective flattening, alogia or avolition) and measures of self-efficacy among people with schizophrenia (19). It should be noted, however, that because causality could not be established, even if negative symptoms might have led to reduced self-efficacy, it is also possible that reduced self-efficacy was what led to the negative symptoms. People with schizophrenia are likely to feel that they lack control not only over the illness but over their environment, as well (20). This is yet another factor that can cause individuals to abandon attempts to improve negative aspects of their lives, including poor interpersonal relations (20).

By contrast, deinstitutionalization and incorporation into various living arrangements within the community may encourage individuals to become more active within their own communities (9).

Loneliness has generally been associated with negative feelings about interpersonal relationships. Lonely people are judged to be less interpersonally competent than people who are not lonely, and research has consistently shown a negative correlation between social skills and loneliness (21). Therefore, it appears that if people with schizophrenia living in the community can enhance their social self-efficacy, they may mitigate their feelings of loneliness.
Loneliness and Social Support
Social support represents an external resource that is accessed from others and operationalized as a social resource (14). The literature indicates that social support is a vital aspect of life in general and mental health in particular (22). Findings show that among numerous positive effects, social support can reduce feelings of loneliness (23).

A social support network may be described as a set of interpersonal relationships that connect people with other people (9). On a broad scale and in relation to society at large, the networks of individuals with schizophrenia are smaller, less interconnected, include fewer personal relationships, and entail a greater number of dependent ties, which focus mainly on family members (24). During the first few years following the first acute psychotic episode and hospitalization, many individuals experience a significant decrease in the number and intensity of social contacts and support (25). This series of events is considered a “network crisis” (26). Many individuals become emotionally withdrawn and experience an extreme change in initiative and in the ability to take part in reciprocal relationships (26). Hence, those who are not close family or friends may have difficulty in maintaining a relationship with the person with schizophrenia (27). Researchers have found that people with a history of repeated and prolonged hospitalization tend to have inadequate social support and small social networks, which are composed primarily of mental health and other professionals, as well as social relationships formed in mental health contexts rather than family and friends in the general community (13, 27).

Differences in social networks and types of relationships were found among residents living in different supported living arrangements designed for people with schizophrenia (9). In light of these results, we examined the contribution of social support to loneliness among residents in various supported living arrangements in the community.

Loneliness and Social Participation in the Community
In the present study, social participation in the community was treated as an environmental measure that may directly influence levels of loneliness. People need to feel part of an active environment in order to feel less lonely. Recreational and other social activities in the community are of particular importance as they are meeting points where people interact and share common activities and concerns. Taking part in a social club, sitting in a café, or simply food shopping naturally involve interaction with other people. Such interaction may help to alleviate some of the feelings of loneliness described by people with schizophrenia (9). Furthermore, through social participation in the community people also learn social skills and receive feedback (10).

Loneliness, Living Arrangements and Employment Status
Examining loneliness in the context of supported living arrangements in the community is particularly important because many of the individuals with schizophrenia who re-enter the community as a result of deinstitutionalization are encouraged, mainly for rehabilitation purposes, to take up residence in a supported housing system. These residents are also encouraged to take part in regular or supported employment, based on the understanding that employment is of vital importance for financial, social, as well as emotional reasons (12). The time spent in the hospital, in addition to the negative side effects of mental illness, make regular employment nearly impossible. Consequently, many persons with schizophrenia find themselves not only without the financial resources to participate in social activities, but also lacking a proper environment for social interaction, which is often facilitated by the workplace. The lack of financial resources can also engender feelings of shame when confronted with social encounters (3, 4). Moreover, being out of the workforce can generate feelings of social inferiority (28).

Thus, the main objective of this study was to gain insight into the experiences of loneliness among individuals with schizophrenia living in the community, and to examine the contribution of self-efficacy, social support, social participation in the community, living arrangement, and employment status to predicting loneliness among those persons.
Method

Sample
The study was conducted in Israel in 2006 among a sample of 97 individuals (over age 18) who were diagnosed with schizophrenia (according to the criteria listed in DSM-IV, 1994), and who lived in supported residences for individuals with mental illness in the community. These residences were run by nonprofit and for-profit agencies throughout Israel, but funded and supervised by the Israeli Ministry of Health. In Israel there is an array of supported living arrangements, which includes group homes, semi-independent and independent apartments. Relative to group homes, the two kinds of apartments house fewer residents and employ a lower staff-to-resident ratio. Therefore we sorted the supported living arrangements in this study into two types, according to the number of residents: (a) group homes of 10-28 residents, and (b) supported (semi-independent and independent) apartments of 1-9 residents. The sample comprised 67% men and 33% women. Seventy-one percent of the participants were Israeli born. The mean age of the participants was 43 years (SD = 10.1, range 24-65 years). Sixty-five percent of the participants were never married, 25% were divorced, and the rest were separated. Twenty-four percent of the participants had children. The average number of years of education was 11.8 years (SD = 2.1). Thirty-six percent of the participants lived in group homes and 64% in supported apartments.

Procedure
This study was conducted in Israel among a convenience sample of 5 group homes and 30 supported apartments for adults with mental illness in the community. Questionnaires were distributed to residents diagnosed with schizophrenia who knew enough Hebrew to complete the questionnaire. Participation in the study was completely voluntary. Of 126 sets of questionnaires that were distributed, 100 sets were returned and 97 were usable (3 sets of questionnaires were incomplete, and could not be used). Thus, the overall response rate was 79%.

Prior to administering the questionnaires and receiving informed consent, residences’ social workers explained the purpose and process of the study to the potential participants. Potential participants were clearly assured that their participation or non-participation would in no way be related to their treatment or living arrangements. The residents were also assured that participation was voluntary, and that the questionnaires would be anonymous. All of the questionnaires were filled out by the residents themselves, and then returned directly to the researchers (whom they did not know) in a stamped self-addressed envelope. Names were not written on the envelopes.

Instruments

Sociodemographic questionnaire: The questionnaire was designed to obtain sociodemographic data (e.g., gender, age, family status, living arrangement and employment status).

The UCLA Loneliness Scale (29): The scale included 20 items pertaining to loneliness, and all beginning with “How often do you feel…” (For example: “that you lack companionship?”) The answers were rated on a four-point scale from 1 = “never” to 4 = “always.” The reliability as measured by Cronbach’s alpha was 0.89. The mean of all the items was calculated to provide an overall score of loneliness. Higher scores indicate greater degrees of loneliness.

General Self-Efficacy Scale (30): The scale was developed to measure perceived self-efficacy at the broadest level and has been adapted to 29 languages, including Hebrew. The Hebrew adaptation of the scale was used in this study (31). The questionnaire included 10 items pertaining to self-efficacy and general self-description (for example: “I can solve most problems if I invest the necessary effort”). Answers were rated on a scale from 1 = “does not describe me at all” to 4 = “greatly describes me.” The scale is unidimensional. The reliability as measured by Cronbach’s alpha was 0.93. The mean of all the items was calculated to provide an overall score in self-efficacy. Higher scores indicate greater degrees of self-efficacy.

MOS Social Support Survey (32): This is a multidimensional, self-administered questionnaire that was developed for patients in the Medical Outcomes Study (MOS). It includes four functional support scales (emotional/informational, tangible,
affectionate and positive social interaction) and the construction of an overall functional social support index. The questionnaire included 19 items pertaining to the level of perceived social support, all beginning with “How often do you feel that there is…” (for example: “someone who understands your problems?”). Answers were rated on a five-point scale from 1 = “none of the time” to 5 = “all of the time.” The four functional support scales were reliable (all alphas > 0.91). The mean of all items included in the four functional support scales was calculated to provide an overall functional social support index. The higher this score, the higher level of social support.

**Participation and Use of Services in the Community Questionnaire (33):** The questionnaire included 12 common activities that one may participate in or perform within the community (for example: goes to a café or restaurant). The questionnaire measured the frequency with which the individual performed each activity per week or month from 1 = “does not perform” to 5 = “performs 2-3 times a week.” The reliability as measured by Cronbach's alpha was 0.72. The mean of all the items was calculated to provide one overall score in social participation: the higher the scores, the greater the extent of their social participation.

**Results**

Descriptive statistics were used to examine the characteristics of participants in the different living arrangements. Chi-Square Crosstab Tests and independent group t-tests were conducted to select relevant demographic characteristics as predictors for subsequent analyses, as well as to examine the differences in the characteristics of participants by type of living arrangements (group homes vs. apartments). Table 1 presents the findings regarding differences in participants’ characteristics by living arrangement.

Significant differences between residents of the different types of living arrangements were found in terms of education, number of prior hospitalizations and frequency of visits to a psychiatrist or mental health clinic. Although age was not found to be significant, it was used in subsequent variance analyses as a control variable.

**Differences in self-efficacy, social support, social participation and loneliness according to living arrangement and employment status**

A MANOVA was conducted in order to examine the effect of living arrangement (group homes vs. supported apartments) as well as employment status (employed or not) on self-efficacy, social support, social participation and loneliness, while controlling for four personal characteristics (age, education, number of prior hospitalizations and frequency of visits to a psychiatrist or mental health clinic). Table 2 reveals significant differences between participants residing in group homes and those in supported apartments with regard to social participation in the community \( F(1, 89) = 19.9, p < .001 \) and social support \( F(1, 89) = 6.47, p < .05 \): the residents of supported apartments reported higher levels of social participation than those in group homes \( (M = 2.4, SD = .55, and M = 1.82, SD = 0.47, respectively) \), as well as a higher level of social support \( (M = 3.5, SD = 0.84, and M = 3, SD = 1, respectively) \). With regard to employment status, significant differences were found in social participation \( F(1, 89) = 5.12, p < .05 \): employed participants reported higher levels of social participation than those who were unemployed \( (M = 2.32, SD = 0.60, and M = 2, SD = 0.54, respectively) \).

**Predictors of loneliness**

To examine the contribution of self-efficacy, social support, social participation, living arrangement and employment status to feelings of loneliness, a hierarchical multiple regression analysis was conducted, where the dependent variable was loneliness and the independent (predictor) variables were participants’ characteristics (age, education, visits to a psychiatrist or mental health clinics during the month preceding the interview, and number of prior hospitalizations), social support, self-efficacy, living arrangement and social participation in the community. Participants’ characteristics were entered as predictors in the first step for control purposes. In the second step the Z-scores of self-efficacy, social support and social participation, as well as living arrangement and employment status, were entered. In the third step, three interactions were entered: the interaction between the Z-score of participation and living arrangement,
the interaction between living arrangement and the Z-score of social support, and the interaction between employment and the Z-score of participation. The Z-scores were used for the variables that were entered into the interactions, in order to avoid problems of co-linearity that result from entering main effects and interaction in the same regression (34). As shown in Table 3, the regression model for predicting loneliness was significant, explaining 46% of the variance \[ F (12,82) = 5.64, p < .001 \]. Social support, participation in community activities and living arrangement had a unique significant contribution to loneliness. Living arrangement \( (\beta = -0.32, p < .01) \) contributed significantly to explaining the variance in loneliness: residents of apartments felt lonelier than residents of group homes did. The greater the extent of social support \( (\beta = -0.54, p < .001) \), and the greater the extent of participation in the community \( (\beta = -0.57, p < .01) \), the lower the participants’ levels of loneliness. No significant interactions were found. Living arrangement did not interact with the effect of social support or social participation in the community on loneliness, and employment status did not interact with the effect of social participation on loneliness.

**Discussion**

The present study focused on the contribution of different variables to the level of loneliness among individuals with schizophrenia living in the community. For this purpose we examined the roles of self-efficacy as an internal resource, social support as an external resource and social participation in the community, living arrangement and employment status as environmental resources.

One of the most noteworthy findings of our study is the contribution of social support to the extent of loneliness: participants who reported higher levels of social support felt lower levels of loneliness. These findings are supported by the results of previous studies that emphasize the importance of adequate social support in reducing and preventing loneliness (7, 23, 35). In a similar vein, first-person accounts of individuals with schizophrenia reflect their desire and need for social relationships and social support to abate loneliness and social isolation (4). Social support in this study was measured as an overall functional social support. In future studies it may be interesting to examine the contribution of the four functional support scales (emotional/informational, tangible, affectionate and positive social interaction) to loneliness in addition to the overall functional score.

The results of this study did not indicate the internal resource of self-efficacy beliefs as a predictor of loneliness. This finding contradicts the claim that people with weak perceptions of self-efficacy may invest less effort, persevere less and, therefore, be less able to combat feelings of loneliness (15). In this study, we conceptualized and measured a generalized sense of self-efficacy that refers to global confidence in one’s coping ability across a wide range of demanding situations (29). Perceived self-efficacy can also be understood as being domain-specific. That is, one can have more or less firm self-beliefs in different domains or in particular situations or functions. Because

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**Table 1. Participant Characteristics by Living Arrangement**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group home ( (n = 35) )</th>
<th>Supported apartments ( (n = 62) )</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ( (M = 43.7, SD = 9.7) )</td>
<td>( (M = 42.8, SD = 10.3) )</td>
<td>N.S</td>
<td></td>
</tr>
<tr>
<td>Education (in years) ( (M = 11.0, SD = 1.6) )</td>
<td>( (M = 12.2, SD = 2.2) )</td>
<td>( t (95) = 2.8 * )</td>
<td></td>
</tr>
<tr>
<td>No. of prior hospitalizations ( (M = 6.7, SD = 8.2) )</td>
<td>( (M = 3.6, SD = 3.0) )</td>
<td>( t (38) = –2.1 * )</td>
<td></td>
</tr>
<tr>
<td>Visits to psychiatrist or mental health clinic (per month) ( (M = 2.5, SD = 0.9) )</td>
<td>( (M = 3.2 SD = 0.7) )</td>
<td>( t (58) = 4.2 *** )</td>
<td></td>
</tr>
</tbody>
</table>

\* \( p < .05 \)  \** \( p < .01 \)  \*** \( p < .001 \)
a generalized sense of self-efficacy was not found to contribute significantly to loneliness, in future studies it may be interesting to examine a construct that includes both global and domain-specific features, as has been done in research among elderly people (36). An examination of specific domains of self-efficacy may better explain their contribution to loneliness, and may also explain the finding that the level of the generalized sense of self-efficacy did not contribute to loneliness.

The environmental measures that contributed significantly to loneliness in this study were social participation in the community and living arrangement. The more active the individuals were in their community and the more they participated in various kinds of social activities in the community, the less lonely they felt. These findings are consistent with previous research (37), and corroborate the assumption that any kind of interaction with people in the community, such as going to a social club, sitting in a restaurant, or even going to the bank can help mitigate feelings of loneliness (9).

The significant contribution of type of supported living arrangement to loneliness is particularly noteworthy, because many individuals with schizophrenia who re-enter the community as a result of deinstitutionalization are encouraged to live in supported residences, mainly for the purposes of rehabilitation. The participants in this study who lived in group homes felt less lonely than those living in semi-independent and independent apartments. This finding may be understood in light of previous research (27) in which participants described themselves as being physically isolated and said they wanted people near them. In this respect, it is possible that the mere full-time presence of staff members in group homes, as well as the existence of a fairly large number of residents, may contribute substantially to alleviating loneliness.

Although the participants living in semi-independent and independent apartments reported higher levels of loneliness than did their counterparts living in group homes, they enjoyed higher levels of social support. Although individuals in group homes received significantly more time and attention from caretakers than did individuals living in apartments, the nature of the services provided in group homes may not suffice to fulfill the residents’ needs for social support. Thus, it is possible that the residents of group homes felt a need for more informal social support. Another explanation of the finding that residents in semi-independent and independent apartments enjoyed higher levels of social support might be related to the finding that those individuals also reported more frequent social participation in the community. Previous research has shown correlations between social participation in the community and higher functioning, and between higher functioning and adequate social support (37).

In future studies, it would be interesting to examine how individuals in both types of residences

| Table 2. Means and Standard Deviations of Study Variables by Living Arrangement and Employment Status |
|---------------------------------------------------|-------------------------------------------------|-------------------------------------|-------------------|-------------------|-------------------|
| Variable                                          | Group home $(n = 34)$                           | Supported apartments $(n = 61)$     | Significance differences | Unemployed $(n = 35)$ | Employed $(n = 60)$ | Significant differences |
| Self-efficacy                                     | $M = 2.6$ $SD = 0.89$                          | $M = 2.8$ $SD = 0.75$              | NS                 | $M = 2.6$ $SD = 0.82$ | $M = 2.8$ $SD = 0.8$ | NS                 |
| Social support                                    | $M = 3.0$ $SD = 1.0$                          | $M = 3.5$ $SD = 0.84$              | $F (1,89)$ $= 6.47^*$ | $M = 3.24$ $SD = 1.0$ | $M = 3.3$ $SD = 0.9$ | NS                 |
| Social participation                             | $M = 1.82$ $SD = 0.47$                         | $M = 2.4$ $SD = 0.55$              | $F (1,89)$ $= 19.9^{**}$ | $M = 2.0$ $SD = 0.54$ | $M = 2.32$ $SD = 0.6$ | $F(1,89)$ $= 5.12^*$ |
| Loneliness                                        | $M = 43.7$ $SD = 10.8$                        | $M = 44.1$ $SD = 11.3$             | NS                 | $M = 45.0$ $SD = 12.1$ | $M = 43.5$ $SD = 10.5$ | NS                 |

*p < .05 ** p < .01 ***p < .001
construe their matrix of social support, and the extent to which they feel that they receive sufficient formal support from staff members who visit and assist them. It is possible that individuals who are visited by staff occasionally (as is the case of residents in supported apartments) make better use of the presence of staff members or are simply more appreciative of the attention they receive, whereas individuals living in group homes may take the presence of staff members for granted.

Before concluding the discussion, some limitations of the study that affect generalization of the findings should be noted. First, the participants were not selected in a random process, and their participation was voluntary. Hence, the participants in the study were those who had high motivation relative to other residents. Because lack of motivation is one of the characteristics of chronic schizophrenia, this factor might have affected the results regarding the participants' level of energy and motivation. Secondly, because of the limited sample size we could not distinguish between the different types of apartments in terms of number of roommates, living with a significant other or living alone. The fact that symptoms, especially negative symptoms, were not measured and therefore could not be controlled statistically is also a limitation of the study. Further research that measures negative symptoms may provide alternative explanations of the different levels of social support in the different types of residence.

Table 3. Summary of Hierarchical Regression Analysis for Variables Predicting Loneliness (N = 97)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th></th>
<th></th>
<th></th>
<th>Step 2</th>
<th></th>
<th></th>
<th></th>
<th>Step 3</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>beta</td>
<td>t</td>
<td></td>
<td>B</td>
<td>beta</td>
<td>t</td>
<td></td>
<td>B</td>
<td>beta</td>
<td>t</td>
<td></td>
</tr>
<tr>
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<td>0.16</td>
<td>1.49</td>
<td></td>
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<td>-0.001</td>
<td>-0.01</td>
<td></td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.23</td>
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</tr>
<tr>
<td>Education (in years)</td>
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<td>-0.15</td>
<td>-0.02</td>
<td>-0.33</td>
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<td>-0.05</td>
<td>-0.01</td>
<td>-0.09</td>
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</tr>
<tr>
<td>No. of prior hospitalizations</td>
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<td>0.02</td>
<td>0.013</td>
<td>0.15</td>
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<td>Visits to psychiatrist or mental health clinic</td>
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<td>-0.16</td>
<td>-1.85</td>
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<td>-0.14</td>
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<tr>
<td>Z-score: Social support</td>
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<td>-</td>
<td>-</td>
<td></td>
<td>-5.23</td>
<td>-0.47</td>
<td>-5.12***</td>
<td></td>
<td>-6.02</td>
<td>-0.54</td>
<td>-4.21***</td>
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<tr>
<td>Z-score: Social participation in the community</td>
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<td>-</td>
<td>-</td>
<td></td>
<td>-3.24</td>
<td>-0.29</td>
<td>-2.75**</td>
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<td>-6.33</td>
<td>-0.57</td>
<td>-2.89**</td>
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<tr>
<td>Living arrangement</td>
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<td>-7.33</td>
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<td>-2.83**</td>
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<tr>
<td>Living X social participation</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
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<td>-1.97</td>
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<td>-</td>
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<td>0.79</td>
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<tr>
<td>Employment X social participation</td>
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<td>-</td>
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<td></td>
<td>-</td>
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<td>3.49</td>
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<td>R²</td>
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<td></td>
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<td>0.458</td>
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<tr>
<td>F for change in R²</td>
<td>0.65</td>
<td>7.04***</td>
<td>5.64***</td>
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Note: Living arrangement was coded as: 0 = supported apartment, 1 = not supported apartment (group home). Employment was coded as: 0 = unemployed, 1 = employed.

** p < .01   *** p < .001
Practical Implications

The findings have some practical implications for mental health professionals and caretakers. Loneliness is a complaint frequently voiced by people with severe mental illness living in the community, and particularly by those with schizophrenia. One of the most notable findings of this study is that social support and social participation in the community had a significant impact on levels of loneliness. Participation in leisure and social activities in the community may provide the individual with an extensive system of social support that can reduce feelings of loneliness. Specific attention should be given to those living in group homes where perceived social support and levels of social participation in the community were lower than among residents of supported apartments. In many group homes a variety of social and leisure activities are offered within the living arrangement, so that residents do not have to go out to social clubs in the community (including clubs specifically geared to individuals with mental illnesses). In light of the finding that participants in group homes expressed lower levels of social support and participation in the community, caretakers in these homes are encouraged to develop intervention programs that increase resident participation and interaction in the community. Psychiatrists and other practitioners have a critical role to play not only in referring clients to leisure and social services but also in advocating for the provision of such services.

As for future research, it is important that researchers and practitioners move forward together to achieve a better understanding of the factors that contribute to loneliness among persons with schizophrenia, since decrease in the level of loneliness might reduce and even prevent re-hospitalization and crisis, in addition to improving the individual’s general health and quality of life.

References