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Community Integration of Persons with Psychiatric Disabilities in Supportive Independent Housing: A Conceptual Model and Methodological Considerations

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ABSTRACT

Despite the consensus regarding community integration as a major goal of mental health policy and the emergence of supportive independent housing as a critical component of community mental health services, mental health services research has not examined the extent to which housing and service characteristics are associated with community integration of persons with psychiatric disabilities in supportive independent housing. The main goal of this paper is to propose a conceptual model of factors influencing community integration which takes into account the differential configuration of housing setting and support structure in supportive independent housing. The conceptual model encompasses a multidimensional conceptualization of community integration and considers an array of housing and service characteristics that are potentially relevant determinants of community integration. Based on the proposed model, this paper outlines the methodological considerations for future research with regard to measurement, research designs, and statistical models.

KEY WORDS

Community integration; independent housing; community support services; persons with psychiatric disabilities; mental health services research.

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The integration of persons with psychiatric disabilities into the community is perceived as a principle, value, paradigm, and major goal of mental health policy (Carling, 1996; Flynn & Aubry, 1999; Fellin, 1993). The concept of community integration is premised on the notion of common citizenship—that is, individuals with disabilities have an inherent right and should be afforded the opportunity to live, study, work, and recreate alongside, and in the same manner, as their peers without disabilities (Racino, 1995). In this post-deinstitutionalization era, the provision of housing with community support services is seen as pivotal in determining the extent of success in integrating mental health consumers into the community. Within an array of community residential arrangements, supportive independent housing—that is, independent community living arrangements coupled with the provision of community support services—has been considered a housing mode that is most conducive to the goal of integration (Blanch, Carling, & Ridgway, 1988; Carling, 1992). It has been assumed that persons with psychiatric disabilities can assume roles and life styles as participating members of the community in the most normalized living environment, when given appropriate services and supports suited to their mental health status and service needs.

Despite the importance of integration as a key indicator of effectiveness of supportive independent housing, there is little conceptual and empirical work on identifying features of the housing setting that may enhance community integration. Community integration has been conceived as a unidimensional concept focusing on the extent that persons with psychiatric disabilities participate in community activities and use community resources (Segal & Aviram, 1978). Little attention in the mental health literature has been given to defining and measuring other dimensions of integration, including social engagements and interactions with neighbors and other community members, and the perception of community membership (Flynn & Aubry, 1999).

Although a body of empirical research has emerged examining the housing and service correlates of community integration, most of these studies were conducted with residents in sheltered-care settings and congregate community residential facilities, including board and care homes, transitional halfway houses, and long-term supervised group

residences. Given the differences in residential and service arrangements of congregate facilities as compared to independent housing, it is questionable whether these findings can be generalized to those of supportive independent housing. Furthermore, while previous studies have found a number of housing and service characteristics to be predictive of community integration of mental health consumers, few of these studies have related these characteristics to program domains nor have they developed systematic methods to empirically measure the domains. The development of a conceptual model which encompasses a multidimensional conceptualization of community integration, and which maps the relationships between program domains and community integration, is an important starting point for identifying relevant program-level characteristics that may be modified to enhance community integration of mental health consumers residing in supportive independent housing.

The main goal of this paper is to propose a conceptual model for understanding the relationship of housing and service characteristics to community integration in the context of supportive independent housing. A prerequisite for building such a model is a comprehensive conceptualization of community integration. Based on a review of the literature in the mental health and related fields, this paper assesses the conceptual and methodological issues involved in measuring community integration. The proposed conceptual model of potential factors that explain community integration considers an array of housing and service characteristics that are specific to supportive independent housing. This paper draws from and extends current research on factors that influence community integration by reconceptualizing the ways in which the key housing and service domains of supportive independent housing affect community integration. Based on the proposed model, this paper outlines the methodological considerations for future research with regard to measurement, research designs, and statistical methods.

THE CONTEXT: SUPPORTIVE INDEPENDENT HOUSING

For more than a decade, supportive independent housing has evolved as an important component of community mental health services (Knisley & Fleming, 1993; National Association of State Mental Health Program Directors, 1987; Newman, 1992; Newman,

Reschovsky, Kaneda, & Hendrick, 1994). The emergence of supportive independent housing as a desirable housing and service approach for persons with psychiatric disabilities can best be understood in relation to three issues: (1) the critique of the linear residential continuum model as the dominant conceptual framework for community residential services (Ridgway & Zipple, 1990)[1], (2) the recognition of the dire circumstances mental health consumers face in their fulfillment of their housing needs (The Interagency Council on the Homeless, 1992), and (3) the demonstrated effectiveness of intensive community treatment and rehabilitation in enabling persons with severe and persistent mental illness to live in normalized community settings (Stein & Test, 1980; Stein & Test, 1985). Indeed, existing research on homelessness and mental illness has provided evidence of a number of salutary effects of supportive independent housing, including reduced homelessness, increased residential stability, reduced hospitalization and fewer service gaps, reduced symptoms, improved social and personal functioning, improved quality of life, and increased satisfaction with housing (Center for Mental Health Services, 1994; Dickey, Gonzalez, Latimer, Powers, Schutt, & Goldfinger, 1996; Dixon, Friedman, & Lehman, 1993; Hurlburt, Wood, & Hough, 1996; Lehman, Kernan, DeForge, & Dixon, 1995; Marshall, Burnam, Koegel, Sullivan, & Benjamin, 1996; Ridgway & Rapp, 1997; Schutt, Goldfinger, & Penk, 1997; Shern et al., 1997; Tsemberis, 1999).

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[1] The linear residential continuum model is used to describe a residential system that contains various settings that differ in levels of care and/or supervision and levels of restrictiveness. Mental health consumers are matched to a particular setting based on their level of functioning and disabilities. They are expected to move to more independent living arrangement once they become stabilized and acquire the necessary skills. Arguments against the residential continuum model include residential instability induced by the movements along the continuum, the loss of social supports associated with the moves, the possibility of gridlocking the system, and the questionable assumption that consumers do not need mental health services once they “graduate” from the continuum to independent housing.

Two defining program features of supportive independent housing are a permanent living arrangement for mental health consumers, regardless of exacerbation of symptoms (Parkinson, Nelson, & Horgan, 1999), and an emphasis on social integration of mental health consumers with non-disabled community members within normalized settings (Carling, 1992). These features are contrasted with the housing and service characteristics of congregate and supervised residential programs, which emphasize building transitional therapeutic communities based on homogenous groupings of consumers who possess similar levels of functioning (Ridgway & Zipple, 1990). In supportive independent housing, residents are expected to have varied clinical needs and independent living skills, with community support services provided to residents on an individualized, "as needed" basis.

While some have considered supportive independent housing primarily as a non-facility-based and person-centered approach for providing housing and community support for mental health consumers, Carling and others have argued for a paradigmatic approach, emphasizing the philosophical underpinnings of consumer rights and community integration (Carling, 1995; Hogan & Carling, 1992; Ridgway & Zipple, 1990). The "supported housing" model has been coined to signify a housing and service approach that reflects the values of consumer choice, control, self-help and empowerment and that de-emphasizes professional services (Parkinson, Nelson, & Horgan, 1999). But despite the emerging consensus over the desirability of the operational principles of choice, control and empowerment, no studies to date have evaluated the extent to which supportive independent housing programs are organized along these principles.[2] Specific to the purpose of this article, no current work has systematically examined the extent to which features of supportive independent housing programs are predictive of the levels of community integration among their residents.

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[2] A multi-site study, sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Mental Health Services (CMHS), is underway to assess the fidelity to the supported housing model in various community residential programs (personal communication with Debra Rog, September 2000).

Addressing this question requires a critical review of the conceptual and operational definitions of community integration.

CONCEPTUAL AND OPERATIONAL DEFINITIONS OF COMMUNITY INTEGRATION

Among the fields of study of various types of disabilities, the concept of integration has been most thoroughly explored and explicitly articulated in the area of mental retardation and developmental disabilities (Flynn & Aubry, 1999). In his work on normalization and social role valorization, Wolfensberger defined integration as a multidimensional concept with two components—physical and social integration (Wolfensberger, 1972; Wolfensberger & Thomas, 1983; Wolfensberger, 1993). Physical integration consists of "physical presence of a (devalued) person or persons in ordinary settings, activities, and contexts, where non-devalued people are also present," whereas social integration consists of "participation by a (devalued) person or persons in social interactions and relationships with non-devalued citizens that are culturally normative both in quantity and quality, and that take place in normative activities and in valued, or at least normative, settings or context" (Wolfensberger & Thomas, 1983, p. 18). Storey (1993) used a similar conceptualization in his assessment of integration. Building on the work of Mank and Buckley (1989), Storey expanded the social dimension of integration by incorporating the concept of social networks, which was defined as "people who are identified as socially important to a person" (Storey, 1993, p. 283). Based on this definition, social networks were to be assessed by measuring their size, structure, functions, and adequacy in supporting persons with developmental disabilities.

In contrast to the multifaceted notion used in the field of developmental disabilities, research in the community mental health arena has defined integration chiefly in terms of "physical integration." The emphasis on the physical aspect of integration is evident in Table 1, which summarizes the conceptual and operational definitions of integration used in 17 studies of persons with psychiatric disabilities living in community settings.[3] The table also provides information on the study sample and the specific type of residential setting studied.

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[3] The studies included in Table 1 were based on a review of research on community integration of persons with psychiatric disabilities sampled in community-based residential

INSERT TABLE 1 HERE

Segal and Aviram's 1978 study of community-based sheltered-care residents in California has been the most widely cited study of community integration of mental health consumers (refer to the 6th entry of the table). The researchers used the term "external integration" to refer to mental health consumers' involvement outside the residential facility, which was distinguishable from their involvement within the facility, referred to as "internal integration." Five levels of involvement were delineated in the concept of external integration. These included: (1) presence—the amount of time spent in the community; (2) access—the ease to which goods, services, and social contacts are available; (3) participation—the extent of involvement in activities with other people; (4) production—whether or not an individual participates in income-producing employment; and (5) consumption—the extent to which an individual manages his or her personal finances or purchases goods and services.

Segal and Aviram (1978) developed a 44-item External Integration Scale, comprised of 7 subscales to measure 4 of the 5 levels of involvements (refer to Segal & Aviram, 1978, p. 298-301). They dropped the level of "production" from their operational definition of integration because of the small percent of mental health consumers engaged in paid employment in their research. Despite the inclusion of two subscales that inquired into the ease of access to contacts with family and friends, the extent to which mental health consumers actually engaged in social interactions with network members was not adequately covered in the External Integration Scale. Specifically, the inquiry into social interactions was restricted to how often consumers visited family members, friends, and acquaintances in a typical day.

Consistent with the work of Segal and Aviram (1978), the majority of studies in Table 1 defined integration primarily in terms of mental health consumers' participation in community activities and their use of community resources (refer to studies 2, 3, 4, 5, 7, 8, 9, 10, 11, 14, 15, 17 in the table). Consequently, most used either the External Integration Scale or an

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settings. The 17 articles were identified chiefly through an electronic bibliographic database, PsycINFO. Key words included community integration, social integration, community participation, and community attitudes.

adapted version (Aubry & Myner, 1996; Kennedy, 1989; Kruzich, 1985; Nelson, Hall, Squire, & Walsh-Bowers, 1992; Segal, Baumohl, & Moyles, 1980; Segal & Everett-Dille, 1980; Segal & Kotler, 1993; Shadish & Bootzin, 1984; Trute & Segal, 1976), although others used measures that closely resembled the External Integration Scale (Nagy, Fisher, & Tessler, 1988; Sherman, Frenkel, & Newman, 1986; Timko, 1996; Timko & Moos, 1998).

Few studies included measures of the social interactional aspect of community integration (Aubry & Myner, 1996; Sherman et al., 1986; Sherman, Newman, & Frenkel, 1984; Trute, 1986), and only two studies to date included measures of perceived community membership (Aubry & Myner, 1996; Silverman & Segal, 1994). Moreover, the operationalizations of the social (interactional) and psychological (perceptual) aspects of community integration were less well developed than those examining physical integration. For example, in Silverman and Segal's 1994 study, perceived community membership was indicated by a single question: "Do you feel that you really belong to this neighborhood, that you are part of it?" Although two social integration scales have been developed to measure the extent of neighborhood contact (Aubry, Tefft, & Currie, 1995; Trute, 1986), these measures have been used on too limited a basis to establish their psychometric properties.

A clearly articulated and broadened definition of community integration is a necessary step for building a conceptual model that deciphers the relationships of housing characteristics and service environment to community integration among persons with psychiatric disabilities. Such a definition needs to acknowledge that integration of mental health consumers encompasses not only the physical presence in the community of persons with psychiatric disabilities, but also the maintenance of social relationships with other community members and the development of a sense of efficacy and belonging in relation to the community. Such a definition needs to include three dimensions, physical, social, and psychological integration. The definitions of these three dimensions are:

1) Physical integration refers to the extent to which an individual spends time, participates in activities, and uses goods and services in the community outside his/her home or facility in a self-initiated manner (Segal, et al., 1980).

2) Social integration has two sub-dimensions—an interactional dimension and a social network dimension.

   a) Interactional dimension refers to the extent to which an individual engages in social interactions with community members that are culturally normative both in quantity and quality, and that take place within normative contexts (Wolfensberger & Thomas, 1983).

   b) Social network dimension refers to the extent to which an individual's social network reflects adequate size and multiplicity of social roles and the degree to which social relationships reflect positive support and reciprocity, as opposed to stress and dependency (Fellin, 1993; Storey, 1993).

3) Psychological integration refers to the extent to which an individual perceives membership in his/her community, expresses an emotional connection with neighbors, and believes in his/her ability to fulfill needs through neighbors, while exercising influence in the community (Aubry & Myner, 1996; McMillan & Chavis, 1986).

A CONCEPTUAL MODEL OF FACTORS INFLUENCING COMMUNITY INTEGRATION IN SUPPORTIVE INDEPENDENT HOUSING

The conceptual model proposed in this paper is predicated on an ecosystems perspective, which assumes the interdependence and interrelatedness of various components and levels of an ecological system in understanding the influences of mental health consumers' community integration (Hall, Nelson, & Fowler, 1987). The model is adapted from the longstanding work of Moos and his associates (Moos, 1997; Moos & Lemke, 1996) in their evaluation of residential treatment programs for the geriatric, psychiatric and chemically dependent populations. Moos' conceptual framework focuses on personal and environmental factors in residential treatment programs that may affect an array of resident outcomes related to community adaptation, including community integration (Moos, 1997). Specifically, Moos' model postulates that resident outcomes are affected by individual factors such as social-demographic and clinical characteristics, as well as physical (housing), behavioral (policies and services), and support features that characterize residential treatment programs.

Even though Moos' model provides a viable framework for understanding community integration of persons with psychiatric disabilities, one needs to be cognizant of the varying features of different community residential settings when applying the model. A critical consideration is the need to appraise the differential structure of community support and housing arrangements for mental health consumers living in supportive independent housing in contrast to congregate residential facilities. A common feature of supportive independent housing is the operational separation of housing and support services (Carling, 1993). Housing management agencies and mental health service providers are often differentially responsible for shaping the housing, behavioral, and support environments among mental health consumers in supportive independent housing, whereas in congregate residential settings, characteristics pertaining to the housing, behavioral, and support domains are integrated within the same facility. Therefore, consumers receiving support services from the same community support program are likely to be experiencing similar behavioral and support environments, but may be residing in housing settings with qualitatively different physical and community characteristics. These features of supportive independent housing suggest that the assessment of the housing and service environments needs to be conducted separately for each mental health resident and that consideration needs to be given to the differential configuration of the housing setting and service structure on community integration.

Although existing studies on environmental determinants of community integration have recognized the need for controlling person-level factors that might confound the relationship among environmental characteristics and community integration, no attention has been paid to the housing assignment process which may result in pre-existing differences among mental health consumers living in different types of residential settings or specific residential arrangements or facilities within a given program type. The issue of systematic selection is a particular concern in a mental health residential system in which consumers' level of functioning, symptomatology and services needs are routinely assessed by mental health agencies to determine the type of placement assigned. Higher levels of integration found in a certain residential setting might be erroneously attributed to the housing,

behavioral, and support environments, rather than to the pre-existing differences among residents of the referenced and other housing settings.

It is also important to note that independent living with optimal support is not necessarily a condition for increased participation in community activities and engagement in social relationships. Consumer housing preference may be a relevant determinant of community integration. Although research has consistently found that consumers generally prefer independent living (Keck, 1990; Kinsley & Fleming, 1993; Rogers, Danley, Anthony, Martin, & Walsh, 1994; Schutt & Goldfinger, 1996; Tanzman, 1993; Tanzman, Wilson, & Yoe, 1992), at least one study observed that some consumers expressed their desire to share housing with friends (including friends with mental illness), because of social isolation associated with living alone (Pulice, McCormick, & Dewees, 1995). Mental health consumers who prefer to live with family members or share accommodation with other consumers in a group setting, but who are instead placed in supportive independent housing, may be less inclined to get involved in community activities because of the lack of comfort in engaging in social interaction with other community members on their own.

Figure 1 outlines the components of the proposed conceptual model of the factors influencing community integration within a supportive independent housing context. Following is an elaboration of the determinants of integration organized according to three program domains and a panel of individual-level factors.

INSERT FIGURE 1 HERE

Housing Environment

Housing environment refers to the physical and social characteristics in relation to mental health consumers' residential setting and their immediate neighborhood. These characteristics include accessibility of community resources, supportiveness of community, safety of neighborhood, and normalization of housing setting. Accessibility of community resources refers to the availability of resources located in consumers' surrounding community. Examples of community resources are grocery stores, coffee shops, restaurants, movie theaters, libraries, and places of worships. Supportiveness of the community refers to the extent to which neighbors show acceptance of mental health consumers in their community by

engaging in positive social interactions. Safety of neighborhood refers to the amount of criminal activity in the neighborhood and the extent to which an individual feels safe in the neighborhood where he or she lives. Normalization of housing setting refers to the extent to which the residence is located in a physical environment where there are few other individuals with psychiatric disabilities. The extent of normalization of housing setting is contingent on the density of other individuals with psychiatric disabilities in a given location. Therefore, the degree of normalization will vary from scattered site housing, multi-unit building where less than 50% of residents are people with psychiatric disabilities, to housing that is 100% occupied by people with psychiatric disabilities (Hornik, 1998).

Studies conducted in sheltered-care and congregate residential settings provided positive findings regarding the accessibility of resources as a correlate of community integration (Kruzich, 1985; Segal & Aviram, 1978; Segal & Everett-Dille, 1980; Timko, 1996). These studies found that community residential facilities that were in close physical proximity to community resources, such as public transportation, stores, and recreational facilities, had residents experiencing a greater level of integration.

A number of research studies have examined the notion of a “supportive community” (or an “accepting community”) in relation to mental health consumers’ community participation. Neighbors’ acceptance of persons with psychiatric disabilities, as indicated by invitations to their home and by ongoing social interaction, was demonstrated to be a predictor of a higher level of community integration among residents of community-based, sheltered care facilities (Segal & Aviram, 1978; Segal & Everett-Dille, 1980; Sherman et al., 1986). Consistent with this finding, an expression of rejection by neighbors as indicated by voicing complaints to facility operators was associated with a lower level of integration (Segal & Aviram, 1978). Two studies using census tract indicators as proxies for environmental circumstances identified prototypes of a supportive community. Trute and Segal (1976) found communities with moderate levels of social cohesion and social disorganization had residents with a greater level of integration. Also, Segal and his associates characterized supportive communities as either “liberal non-traditional” or “conservative working class” (Segal et al., 1980).

Despite a plausible relationship between safety of neighborhood and community integration, only one study to date has examined this relationship. In the aforementioned study conducted by Segal et al. (1980), the researchers used the amount of criminal activity in the neighborhood as one of several factors for constructing a community typology. Interestingly, the two community types with higher levels of consumer integration—namely, liberal non-traditional and conservative working class communities—had, respectively, average and high rates of criminal activity relative to other sheltered care communities.[4]

A construct in the proposed conceptual model that is specific to supportive independent living, as opposed to congregate housing arrangements, is normalization of housing. Because of the absence of published research, the hypothesized direction of the association between normalization of housing and community integration is unclear. One could argue for either direction—that a more normalized housing setting would compel mental health consumers to develop closer relationships with their nondisabled neighbors, or that a less normalized setting would lead to the cultivation of friendship and socialization among mental health consumers who live in close proximity with each other.

Behavioral Environment

Behavioral environment refers to the nature of program policy and operation and the availability of services that influence the pattern of behavior of mental health consumers in supportive independent housing. The policy and operational realm includes rules and regulations which stipulate the minimum standards of acceptable behavior among residents in a housing program; program practices that determine the levels of choice, control, and privacy rendered for residents; and the extent to which rules and regulations are clearly communicated to residents through formal channels (Timko, 1995). Specifically, the concept

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[4] No existing studies were identified that specifically examined the association between perceived safety of the neighborhood and community integration. As one reviewer of this article pointed out, the Lehman's Quality of Life Interview (Lehman, 1988), which includes a 5-item scale on individuals' subjective assessment of safety issues, may be adapted as a measure of perceived safety.

of independence denotes the extent to which mental health consumers may control decisions regarding the nature of their living environment, including visitation, unit access/privacy, use of disposable income, and ability to change the physical and architectural dimensions of their dwellings (Hornik, 1998). The concept of service availability refers to the degree to which residents may access health, treatment, and social-recreational services, and assistance with daily and community living, either directly through the community support program or indirectly via its linkage with other mental health or non-mental health agencies and resources.

Several policy and operational characteristics of community residential programs are found to be associated with the level of community integration. Studies of residents in congregate facilities and sheltered-care housing found that rigid daily routines and block treatment (e.g., requiring residents to perform activities at the same time) were associated with a lower level of community integration (Kruzich, 1985) and that a clear articulation of program expectations (Segal & Aviram, 1978) was associated with a greater level of integration.

The availability of daily living skills training within a residential facility was linked to higher levels of involvement in community activities and use of community resources (Kruzich, 1985; Segal & Aviram, 1978). A higher cost of care, which may be considered a proxy for the availability of services, was associated with a higher level of integration (Nagy, et al., 1988). Facility operators' attitude toward social services, a potential indicator of operators' linkage to social service agencies in the community, was also found to be an important predictor of integration (Kruzich, 1985). As expected, positive attitudes of facility operators toward social services were associated with greater integration among residents.

Support Environment

Support environment refers to the "treatment milieu," "personality," or "atmosphere" of the program that gives it unity and coherence (Moos & Lemke, 1996). The support environment is reflected in the quality of interaction among residents and staff (Brekke, 1988), and is considered an important domain that has profound effects on the outcomes of community support programs for participants (Burt, Duke, & Hargreaves, 1998). Included in the conceptual model are three aspects of the support environment that have been

determined to be significant predictors of integration among residents of congregate residential facilities. These dimensions include supportiveness of staff-resident relationship (active support), the extent to which residents are encouraged to understand their personal problems (personal expression), and the emphasis on residents' learning of social and work skills (practical orientation).

Researchers have found that more active support, encouragement of personal expression, and greater focus on practical orientation were associated with a higher level of resident activity in the community (Segal & Aviram, 1978; Timko & Moos, 1998), whereas social distance between staff and residents was associated with a lower level of integration (Kruzich, 1985). Specifically, the concept of "an ideal psychiatric environment," characterized by high levels of resident involvement, staff and resident support, and spontaneity and autonomy, was used to denote environmental supports that were conducive to residents' community integration (Flynn & Aubry, 1999; Segal & Aviram, 1978).

Research has suggested that the direction and strength of the relationship between treatment climate and community integration were moderated by consumers' psychiatric status, although the findings were not consistent. Whereas Segal and Aviram (1978) found that an ideal psychiatric environment was a relatively strong predictor of higher utilization of community resources and participation in community activities among mental health residents who were asymptomatic than those who were symptomatic, Timko and Moos (1998) found program emphasis on active support, personal expression, and practical orientation was a stronger predictor of community participation among more symptomatic residents.

Included in the conceptual model is a construct that taps into the structure and organization of support available to mental health consumers in independent housing. The construct refers to the intensity and interconnectedness of different components of the resident's support system. Given the variability of clinical needs and independent living skills, the intensity of support provided to different individuals within similar independent housing settings is likely to vary. Furthermore, because mental health residents in independent housing are not living in a facility with other consumers and staff on-site 24 hours a day, the building of a support system from outside their residence is critical to the quality of residents'

community life. Residents in independent housing may have more than one source of support from mental health providers, such as residential support staff, intensive case managers (or staff from assertive community treatment teams) and other mental health professionals (e.g. therapist in a day program). The intensity of support from each source, as well as the extent to which these providers are linked with each other to enable residents to achieve the goal of independent living, may well be a significant factor for community integration.

Personal Factors

Within the conceptual model of community integration, personal factors include socio-demographic attributes (e.g. age, race/ethnicity, gender, and socio-economic status), clinical characteristics, physical health status, level of functioning, chronicity and severity of psychiatric symptoms, consumer's housing preference, length of stay and living arrangement (such as living alone or with a spouse, partner, or children). Personal factors are conceived as factors influencing mental health agencies' assignment of consumers to different housing and service settings (indicated by a dotted arrow in Figure 1), as well as potential determinants of community integration (indicated by a solid arrow). For instance, the admission policy and the availability of services (behavioral environment) of a residential support program may dictate the level of functioning of residents who are admitted to the program. Consumers' preference for a certain living arrangement may significantly affect the extent of their integration in the community, regardless of the housing and service characteristics of supportive independent housing. Thus, in identifying the housing and service characteristics that may explain levels of community integration among mental health consumers, personal characteristics that individuals bring to the particular supportive independent living arrangement need to be considered.

A number of person-level factors have been associated with community integration. Greater resident integration has been found to be related to being of younger age (Kruzich, 1985; Nagy et al., 1988; Segal & Everett-Dille, 1980) or of middle age (Sherman et al., 1984); being white (Nagy et al., 1988); reporting a lower level of psychopathology (Segal & Everett-Dille, 1980; Silverman & Segal, 1994; Timko & Moos, 1998); demonstrating a higher level of psychosocial and physical functioning (Kruzich, 1985); demonstrating a sense of social

competence (Kennedy, 1989); possessing sufficient spending money (Segal & Aviram, 1978; Segal & Everett-Dille, 1980); having greater control over one's spending money (Segal & Aviram, 1978); being a voluntary resident in the community residential program (Segal & Aviram, 1978); and expressing satisfaction with the current dwelling (Silverman & Segal, 1994). Length of stay in a facility or neighborhood has been found to be associated with the degree of community integration, but the direction of the association was inconsistent. Kruzich (1985) found the longer one stayed in a residential facility, the less likely one would be involved in leisure- and work-related activities in the community. In contrast, both Silverman and Segal (1994) and Trute (1986) found that length of stay in a given neighborhood and facility was positively associated with residents' sense of belonging to the neighborhood and the amount of social contact with neighbors.

METHODOLOGICAL CONSIDERATIONS FOR EXAMINING THE CONCEPTUAL MODEL

The proposed conceptual model of potential determinants of community integration requires much methodological consideration in order to subject it to empirical examination. The relationship of housing and service characteristics to community integration documented in existing research has focused primarily on the physical dimension of community integration. Little is known about the association of various program characteristics to social and psychological integration. There are also issues in the operationalization and measurement of different program domains of supportive independent housing, which require investigation. Testing and further refinement of the conceptual model necessitates the employment of a variety of different research strategies. Naturalistic studies represent a feasible approach for a generic testing of different hypotheses derived from the model, but observational or correlational designs are susceptible to selection bias. Controlled randomized experiments, albeit more costly and may be less feasible, could be used to test particular variations of housing and support resources to enhance community integration of designated groups of consumers.

Developing Research Hypotheses on Community Integration

A corollary of a multidimensional conceptualization of integration is the formulation of hypotheses regarding the interrelationship among different dimensions of integration, and the

relationship of each dimension of community integration to different program domains. Although measurement scales have been developed for the physical, social, and psychological dimension of integration (Aubry & Myner, 1996; Aubry, Tefft, & Currie, 1995; Nelson et al., 1992; Perkins, Florin, Rich, Wandersman, & Chavis, 1990; Segal & Aviram, 1978), no research to date has incorporated scales measuring the three dimensions of integration, and at the same time, assessed the multidimensionality of the scales.[5] To assess the multidimensionality of community integration, researchers may use covariance structure analysis to evaluate the factor structure of measurement scales, the extent to which the latent factors are correlated with each other, and the extent to which the three dimensions constitute one underlying construct of integration.

Because published work on community integration of mental health consumers has focused primarily on physical integration (recall Table 1), researchers will benefit little from existing findings to guide the identification of relevant program-level predictors of social and psychological integration. Despite this, common sense and intuitive thinking may guide the attempt to generate hypotheses on the relationships of housing and service characteristics to social and psychological integration. For example, even though residents living in housing settings that are in close proximity to community resources (i.e., more accessible to resources) are expected to experience greater physical integration, it is doubtful whether accessibility to resources is necessarily associated with social or psychological integration. As noted previously, the extent of normalization may be considered a potentially important predictor of social and psychological integration, but it is not clear whether normalization is a facilitating or hindering factor. Given the dearth of research on social and psychological aspects of integration, qualitative research methods, including participant observation, in-depth interviews, and focus groups may be useful tools for generating relevant hypotheses in relation to housing and service characteristics.

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[5] Aubry and Myner (1996) conducted the only study to date which incorporated the three dimensions of integration (refer to Table 1, 1st entry). The researchers did not test the multidimensionality of the measures.

Measuring the Explanatory Concepts—Program Domains

Although a number of psychometrically validated measurement scales and inventories have been developed to assess the environmental characteristics of community-based mental health programs (for a review, refer to Hargreaves, Shumway, Hu, & Cuffel, 1998), only the Residential Substance Abuse and Psychiatric Programs Inventory (RESPPI), developed by Timko and Moos (Timko, 1995), offers a set of instruments that systematically evaluates different program domains of community-based residential programs.[6] The RESPPI contains four components that characterize residential treatment facilities (Timko, 1994): Physical and Architectural Characteristics Inventory (housing domain), Policy and Service Characteristics Inventory (behavioral domain), Resident Characteristics Inventory (resident characteristics measured at the aggregate level) and Community Oriented Programs Environment Scale (support domain). These components fit well into the conceptual model proposed, and have been shown to have desirable psychometric properties (Moos, 1997; Timko, 1996).

However, because the RESPPI is constructed to assess the treatment environment of congregate and supervised facilities in inpatient (hospital) and community-based settings, the scales comprising the RESPPI may not be directly applicable to the specific housing and service arrangements of supportive independent housing residents. For example, items in the Community Oriented Programs Environment Scale presume regular contact between staff and residents, and interaction among residents. Even though the assumption of staff-resident contact is valid in supportive independent housing, regular interaction among residents may not be a pertinent feature of scattered-site supportive independent housing programs.

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[6] Jerrell and Hargreaves (1991) developed an 80-item Community Program Philosophy Scale (CPPS) to tap 20 characteristics reflecting the operating style of community programs providing services to persons with psychiatric disabilities. Burt and colleagues (Burt, Duke, & Hargreaves, 1998) developed a 97-item Program Environment Scale (PES) to measure 24 characteristics of community-based programs for the severely mentally ill. However, both scales focus on nonresidential treatment programs and subjective perception. The CPPS is a staff response inventory, and the PES captures the consumer perspectives.

Moreover, the extent of normalization, a core concept of supportive independent housing, is not included as a component of the RESPPI.

Nevertheless, the Residential Substance Abuse and Psychiatric Programs Inventory provides a conceptual and methodological basis upon which measures of program domains in supportive independent housing may be developed. In the development of measurement instruments to assess the housing and service environments of supportive independent housing, researchers need to take into account the heterogeneity that exists among different modes of independent living arrangement. For example, whereas housing and support services may be offered by two independent agencies (a housing management agency and a mental health agency respectively) for some programs, other programs may have one single mental health agency managing housing as well as providing community support services. In other instances, a mental health agency may provide community support for residents living in housing managed by a private developer, and may also serve as a linkage among the residents, the developer, and their neighbors. These differences in service and operational arrangements between housing and community support services may have an impact on the amount and quality of interaction between residents and their neighbors. These various operational constellations need to be reflected in the measures that assess the behavioral and support environments of independent housing. In the construction of quantitative measures of program domains, researchers may use qualitative research approaches to explore the structure, dynamics, and nuances of different housing and service arrangements.

Research Design Considerations for Testing the Conceptual Model

The requisite for testing the proposed conceptual model is a community which has a variety of independent housing programs differing in housing and support service characteristics for a sufficiently large number of individuals with psychiatric disabilities. Such a community environment would ensure variability in the key independent variables and adequate statistical power for identifying program-level effects. Large-size jurisdictions with a diverse population base and high level of heterogeneity in community characteristics have the additional benefit of increasing the generalizability of research findings.

Correlational designs that examine the association between different housing and service characteristics and community integration at one point in time represent a viable method for testing the conceptual model. Longitudinal follow-ups of a cohort of individuals placed in supportive independent housing further strengthen causal inference by establishing the temporal ordering of variables included in the model. Despite the appeal of naturalistic designs, one needs to be cognizant of potential selection bias inherent in these designs. In the mental health field, the concept of “person-environment fit” (Segal, Silverman & Baumohl, 1989) is vouched for as a guiding principle for community care placement. The concept has been adopted in mental health service systems to determine residential assignments by matching applicants’ sociodemographic attributes, clinical status, health and functioning status with housing and service characteristics of residential programs (Herman & Mowbray, 1991; Shern, Wilson, Ellis, Bartsch, & Coen, 1986). To the extent that systematic selection permeates the process of assigning housing and support service resources, modeling of the housing assignment process (as suggested in Figure 1) is critical for controlling the selection effects in naturalistic studies. To account for differential selection to various supportive independent housing settings and to adjust for the confounding effects of individual prognostic factors, researchers may benefit from the use of such statistical methods as the propensity score model (Little & Rubin, 1987; Rosenbaum, 1995). On a related note, identifying the effects of micro-contextual factors (such as the behavioral and support environments) on community integration at the individual level necessitates the researchers’ use of statistical techniques that take into consideration the hierarchical data structure, such as the hierarchical linear model (Bryk & Raudenbush, 1992).

Whereas correlational studies may help researchers identify program-level factors that are associated with community integration of mental health consumers, controlled randomized experiments are appropriate when the research goal is to focus on important variations in the way mental health systems might use their housing and support resources with particular groups of clients. For instance, a mental health system may want to find an effective way to help consumers with co-occurring substance abuse disorders to overcome social isolation through engaging in positive social relationships with their neighbors. Assuming that the

extent of interconnectedness of individual support systems is associated with social integration (as suggested in correlational studies), it is plausible for researchers to propose a randomized field trial to test the effects of increasing the interconnectedness among providers within the consumer's support system to reduce social isolation among dually diagnosed consumers. In this example, the feasibility of undertaking a randomized experiment is enhanced by the "circumscribed" nature of "system maneuvering" and by the demonstrated empirical relationship between the interconnectedness of individual support systems and community integration in correlational studies.

CONCLUSION

As the delivery of mental health services moves toward supporting individuals with psychiatric disabilities in independent living, it is of paramount importance for policy makers and mental health service providers to identify characteristics of independent housing that are associated with positive consumer-level outcomes. But despite the consensus regarding community integration as a major goal of mental health policy, mental health services research has not yet examined the extent to which housing and service characteristics are associated with community integration of consumers in this particular housing setting. This paper took an important step toward future research on community integration by proposing a conceptual model that acknowledges the multidimensionality of community integration and that considers an array of housing and service characteristics that are potentially relevant determinants of community integration. It discussed a number of methodological considerations, highlighting the levels of complexity and intricacy involved in testing the proposed model. The ultimate utility of the conceptual model will be appraised by its ability to provide guidance to researchers to study community integration in a systematic manner in order to identify housing and service features that may be modified to enhance community integration among persons with psychiatric disabilities in supportive independent living.

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Table 1
A Review of Conceptual and Operational Definitions of Community Integration in the Mental Health Research Literature

Author(s)	Study sample	Housing program/type	Conceptual definition of integration	Operation definition of integration
1. Aubry & Myner 1996	51 persons with psychiatric disabilities and 51 nondisabled persons	14 community mental health housing programs (10 board and care homes and 4 supervised residences)	1. Physical integration: physical presence in the community 2. Psychological integration: the extent to which the individuals perceived themselves as being similar to neighbors and felt part of the neighborhood 3. Social integration: degree of social contact with neighbors	1. Physical integration: a 12-item condensed version of Segal & Aviram's 1978 External Integration Scale 2. Psychological integration: 12-item Sense of Community Scale by Perkins et al., 1990 3. Social integrationa 13-item Social Integration Scale by Aubry, Tefft, & Currie, 1995
2. Kennedy 1989	159 clients of community support services program	Supervised community residences (4 agencies), supportive apartments (6 agencies) & single room occupancy (3 hotels)	Access to basic, personal, and social resources, and participation in the community	A 31-item scale adapted from Segal & Aviram's External Integration Scale (1978)
3. Kruzich 1985	87 ex-patients from state mental hospitals	Combined skilled nursing and intermediate facilities, freestanding intermediate care facilities, and congregate care facilities (total=43)	Leisure- and work-related behavioral involvement in activities outside the individual's residence	A 10-item scale adapted from Segal and Aviram (1978) measuring the frequency of involvement in community events, use of community resources, and participation in employment.
4. Nagy, Fisher, & Tessler 1988	851 mentally ill residents	201 board and care homes	Participation in community activities	A 5-item scale: shopping; barber/beauty shop; movies; outing; restaurant or coffee shop
5. Nelson, Hall, Squire, & Walsh-Bowers 1992	66 participants	5 supportive apartment programs, 2 group homes, and 4 board and care facilities	No conceptual definition was given in the article	A 7-item scale adapted from Segal & Aviram (1978) including use of community resources, involvement in community activities, doing volunteer work, and going to school or work.
6. Segal & Aviram 1978	499 non-retarded sheltered-care residents	211 sheltered care facilities (including family-care homes, halfway houses, and board-and-care homes)	Five levels of involvement outside the facility including presence, access, participation, production, and consumption	A 44-item External Integration Scale comprising 7 subscales measuring the amount of time spent outside the facility, access to goods and services, social contacts and participation in community activities, and consumption of goods and services
7. Segal, Baumohl, & Molyes 1980	397 seriously mentally ill sheltered-care residents	Same as Segal & Aviram 1978	The extent to which the resident spent time in, had access to, participated in, and produced and consumed goods and services in the community in a self-initiated manner	Segal & Aviram's 1978 External Integration Scale
8. Segal & Everett-Dille 1980	Same as Segal & Aviram 1978	Same as Segal & Aviram 1978	The degree to which an individual independently becomes involved in the community outside	Segal & Aviram's 1978 External Integration Scale
9. Segal & Kotler 1993	234 seriously mentally ill persons (a 10-year follow-up of Segal and Aviram's 1978 study)	56.5% of the sample lived in sheltered care; 30.3% lived in the community; 13.2% were institutionalized	The extent to which an individual participated in and made use of the community in a self-initiated manner	Segal & Aviram's 1978 External Integration Scale
10. Shadish & Bootzin 1984	204 psychiatric patients	12 nursing homes; 1 community mental health center ward; 1 community mental health center day treatment center	Production (income generation), consumption (spending), and social behavior inside and outside a mental health facility	A modification of Segal & Aviram's 1978 approach

Table 1 (*continued*)

Author(s)	Study sample	Housing program/type	Conceptual definition of integration	Operation definition of integration
11. Sherman, Frenkel, & Newman 1986	95 mentally ill adults and 101 care providers	Family care homes	Community participation: active participation of the resident in some aspects of community life (use of community resources, socialization, and community activities)	1. Use of community resources: doctor, dentist, barber, groceries, drugstore, & post office 2. Socialization: Time spent with neighbors, friends, or relatives 3. Community activities: restaurant, religious services, party, meeting place, club, movie, sports, ceremonies, plays or concerts, volunteer work
12. Sherman, Newman, & Frenkel 1984	Same as Sherman, Frenkel, & Newman 1986	Same as Sherman, Frenkel, & Newman 1986	Community acceptance: an active and personal involvement of community members with former mentally ill patients	1. Reaction of neighbors to residents (single-item indicators) 2. Interaction with neighbors (5-item summative scale) 3. Satisfaction with neighbors (5-item summative scale)
13. Silverman & Segal 1994	191 seriously mentally ill persons	Same as Segal & Kotler 1993	The extent to which ex-patients feel they "belong" in their neighborhoods	Response to one question: Do you feel that you really belong to this neighborhood, that you are part of it?
14. Timko 1996	94 hospital- and community-based psychiatric and substance abuse residential treatment programs	Selected programs must meet the following criteria: 1. housed at least 10 patients; 2. offered meal plan and organized services; 3. allowed patients to stay at least 2 weeks; 4. most patients had psychiatric or substance abuse problems; 5. patients were 18 years old or over and primarily English speaking	Behavioral involvement in activities in patients' surrounding communities	A 16-item scale measuring the percentage of patient participating in activities outside the program (e.g. percent of patients who left the facility to shop)
15. Timko & Moos 1998	89 residential psychiatric and substance abuse programs	Same as Timko 1996	Participation of activities outside patients' facilities	Same as Timko 1996
16. Trute 1986	47 chronic psychiatric patients living in board and care residences	27 board and care residences	Contact with local neighbors	A 7-item Neighborhood Contact Scale. Scale items include: talked to neighbors; knew neighbors' names; called a neighbor on the phone; asked a neighbor into own house; been invited into a neighbor's house; went anywhere with a neighbor; borrowed anything from a neighbor
17. Trute & Segal 1976	129 residents with psychiatric disabilities in California & 98 in Saskatchewan	Sheltered care facilities	Five levels of involvement outside the facility including presence, access, participation, production, and consumption	Segal & Aviram's 1978 External Integration Scale

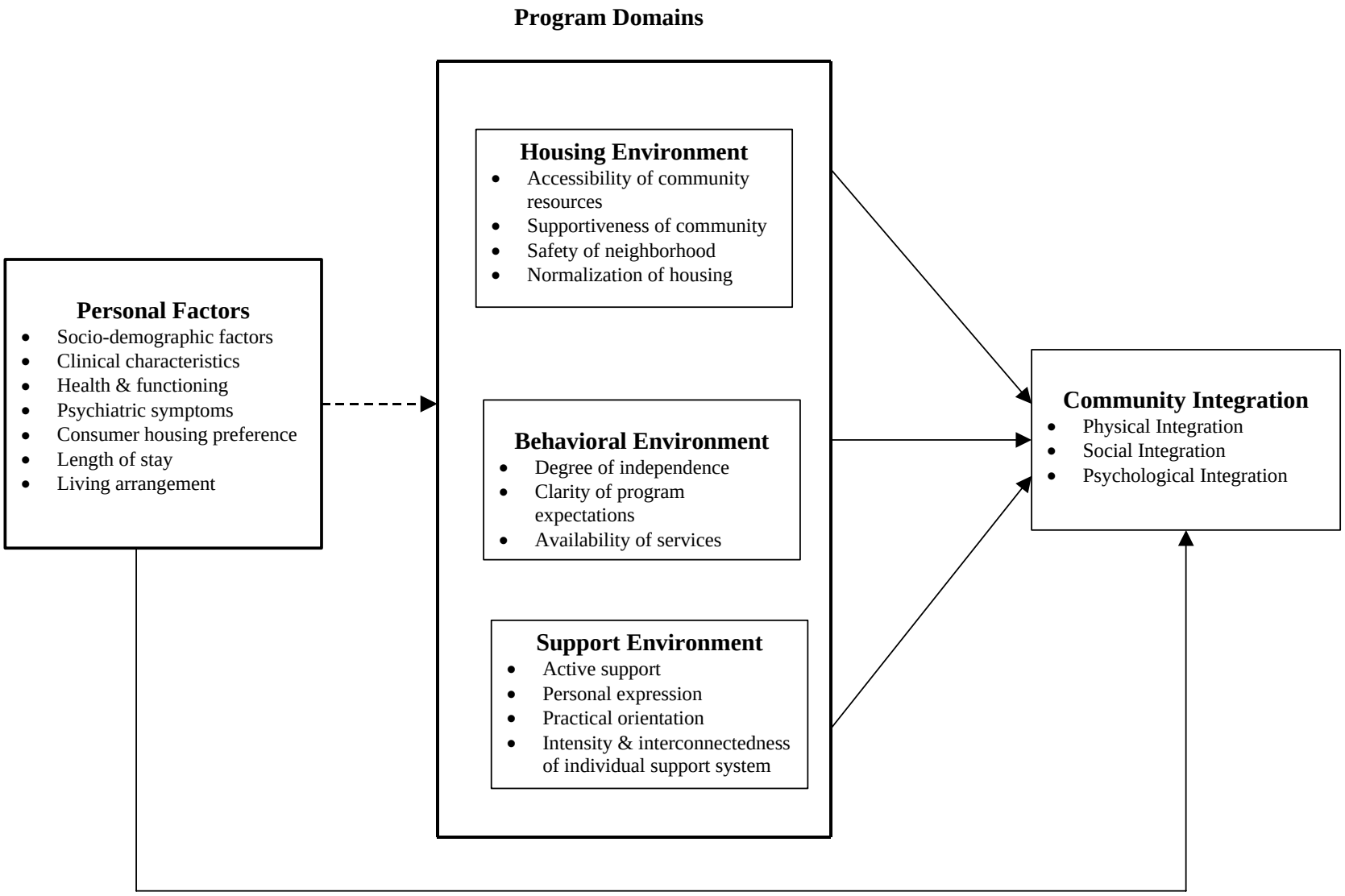

Figure 1: A Conceptual Model of Factors Influencing Community Integration of Persons with Psychiatric Disabilities Living in Supportive Independent Housing