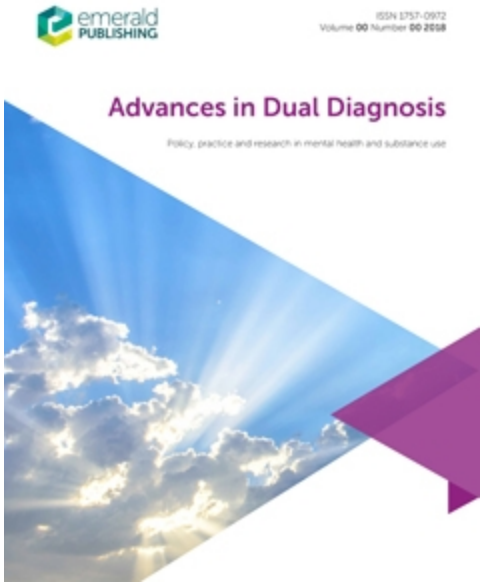

Recovery, quality of life, and issues in supported housing among residents with co-occurring problems: a cross-sectional study

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Recovery, quality of life, and issues in supported housing among residents with co-occurring problems: a cross-sectional study

Abstract

Purpose: Recovery for residents who experience co-occurring problems and live in supported housing takes place in everyday contexts. The current study aimed to explore residents' self-reported recovery and quality of life and to examine the relationships between these factors and issues in supported housing.

Design: A cross-sectional study was conducted at 21 supported housing sites in six cities across Norway. One-hundred and four residents (76 men and 28 women) responded to measures of recovery (Recovery Assessment Scale - Revised), life satisfaction (Manchester Short Assessment of Quality of Life), affect (single items), staff support (Brief INSPIRE), and sense of home (single items).

Findings: Linear regression analyses indicated associations between recovery and staff support (B = .01, 95% CI = .01-.02, β = .39), housing satisfaction (B = .15, 95% CI = .07-.22, β = .38), sense of home (B = .23, 95% CI = .14-.32, β = .49), and satisfaction with personal economy (B = .11, 95% CI = .05-.17, β = .33). Similarly, associations were found between life satisfaction and staff support (B = .03, 95% CI = .02-.04, β = .46), housing satisfaction (B = .63, 95% CI = .46-.80, β = .60), sense of home (B = .65, 95% CI = .42-.87, β = .51), and satisfaction with personal economy (B = .34, 95% CI = .19-.50, β = .39).

Originality/value: The findings imply that core issues in supported housing, namely, staff support, housing satisfaction, sense of home, and satisfaction with personal economy, are associated with recovery and quality of life.

Keywords: *dual diagnosis, severe mental illness, substance use disorder, well-being, housing first, supportive housing*

Background

Substance use and mental health problems are heterogeneous and diverse (Drake *et al*., 2007; Lehman, 1996a) and commonly co-occur (Landheim *et al*., 2002; Mordal *et al.,* 2008). Recovery for persons with co-occurring substance use and mental health problems (co-occurring problems) takes place in everyday life (Borg and Davidson, 2008). A growing body of qualitative research has illustrated that social and contextual matters are central to recovery and quality of life (Biong and Soggiu, 2015; Brekke *et al*., 2017; Ness *et al*., 2014). Issues that affect the lives of persons with co-occurring problems have not been sufficiently researched using quantitative approaches that can provide more generalizable knowledge across contexts. There is particularly limited knowledge concerning persons with co-occurring problems who live in supported housing with associated staff. Levels of self-reported recovery and quality of life among residents with co-occurring problems remain unexplored, as do the ways in which issues in supported housing relate to recovery and quality of life.

The term recovery can refer to observable clinical outcomes or an experienced personal and social process (Borg *et al.*, 2013). Notions of personal and social recovery stem from the survivor movement in response to psychiatry (Frese and Davis, 1997). In the current study, recovery is conceptualized as a process of creating a meaningful life on one's own terms within a given social context despite substance use or mental health challenges (Anthony, 1993; Davidson and White, 2007). Quality of life is closely associated with recovery and can be conceptualized as subjective evaluations of well-being that concern individual experiences of satisfaction with life and satisfaction with various life domains (De Maeyer *et al*., 2009; Lehman, 1996b). Furthermore, quality of life includes positive and negative

affect, which can contribute to subjective experiences of well-being in and across situations, roles, and interactions (Carlquist, 2015).

The recovery process is at the core of recovery-oriented rehabilitation (Deegan, 1988). Staff within substance use and mental health services can work in accordance with recovery-oriented principles through assisting service users in pursuing personal aims and hopes (Frese and Davis, 1997), in order to support their quality of life (Slade, 2010). One core concern in recovery-oriented rehabilitation is the provision of adequate, long-term housing. Supported housing refers to a variety of models (Fakhoury *et al*., 2002), and distinctions are typically made between 'housing first' (housing combined with flexible staff support) and 'treatment first' (housing granting residency based on clinical progress) (Gonzalez and Andvig, 2015a). Staff availability, emotional support, and assistance with daily tasks are key in supported housing and can help residents in developing a home and in enhancing their quality of life (Borg and Davidson, 2008; Gonzalez and Andvig, 2015b). Having a sense of home goes beyond physical housing and distinguishes supported housing sites from institutions (Ridgway *et al*., 1994).

Internationally, some quantitative studies have been conducted on housing satisfaction and quality of life among residents with mental health problems (Eklund *et al*., 2017), and substance use or co-occurring problems (O'Connell *et al*., 2006). Studies using qualitative approaches have reported that insufficient staff support, inadequate housing, and financial challenges may hinder recovery (Brekke *et al*., 2017; Ness *et al*., 2014; Sælør *et al*., 2019). In a Norwegian context, persons with co-occurring problems are considered among the most vulnerable groups on the housing market (Ministries, 2014). Lacking access to housing is generally attributed to low income and financial challenges (Ministries, 2014). National guidelines for the

assessment, treatment, and rehabilitation of persons with co-occurring problems recommend working to enhance service users' quality of life through emphasizing resources and strengths (Norwegian Directorate of Health, 2012). The guidelines highlight the importance of prioritizing social support, housing, and personal economy, which are core issues in supported housing. Policy documents on social housing (Dyb, 2017) state that the municipalities should assist persons who lack access to adequate housing in accessing stable accommodation and staff support in accordance with individual needs and goals (Norwegian Directorate of Health, 2012; Ministries, 2014).

Public supported housing in Norway is managed on the municipal level, and each respective municipality is responsible for providing supported housing for inhabitants with co-occurring problems. Rental agreements are based on the Norwegian Tenancy Act (2007). It appears to be common practice for supported housing services to require collaboration agreements between residents and their respective housing services (Aakerholt *et al*., 2016). Supported housing sites may have written house rules, which for instance regulate issues pertaining to residents' apartments and to common areas (Andersen *et al*., 2016). Residents in supported housing have access to support from on-site or off-site housing staff, frequently in combination with municipal or specialist substance use and/or mental health services.

Given the scarcity of quantitative studies on recovery and quality of life among residents with co-occurring problems, and the following lack of generalizable knowledge concerning these issues, the present study aimed to explore self-reported recovery and quality of life among residents in supported housing. Due to limited knowledge regarding the relationships between recovery, quality of life, and issues in

supported housing, the study also aimed to examine associations between recovery, quality of life, and issues in supported housing. The following research questions were addressed:

1) How do residents with co-occurring problems in Norwegian cities assess their recovery, quality of life, and issues in supported housing?

2) What are the associations between recovery, quality of life, and issues in supported housing among residents with co-occurring problems in Norwegian cities?

Methods

Study population and design

A cross-sectional design was applied in order to address the research questions. The study population consisted of persons with co-occurring substance use and mental health problems who were renting apartments at municipal supported housing sites with staff in large Norwegian cities. Data were collected at multiple supported housing sites between August and November 2018.

Recruitment and sample

The recruitment procedure was carried out step-wise on three levels: on the city level, on the housing level, and, finally, on the participant level. Six large cities in Norway were selected based on size and geographical location to ensure that different regions of the country were represented in the study. Next, supported housing sites in these cities were invited to contribute to the study. The inclusion criteria at the housing level were: 1) the housing site offers housing to residents with co-occurring problems; 2) the housing site is managed on the municipal level; 3)

residents have rental agreements in accordance with the Norwegian Tenancy Act; and 4) residents have access to staff support on a daily or weekly basis. In order to identify relevant municipal supported housing sites located in each of the cities, the researchers utilized a combination of strategies, including searching for 'supported housing' and the names of relevant geographical areas using search engines, and contacting housing sites by telephone or email. Nine sites were excluded during the early recruitment phase as they did not fit the inclusion criteria, due to being run by a private organization rather than the municipality, providing temporary housing without rental agreements, or not accommodating residents with substance use problems. In total, thirty housing sites fit the inclusion criteria. Out of these 30 sites, 21 contributed to the study, while seven of the remaining sites were excluded due to lack of interest, and two due to lack of response.

To recruit on the participant level, the first author contacted staff at each site via telephone or email to inquire about study eligibility and interest. A study description was then emailed to a contact person at each site. This written information was further distributed to staff and residents. Prior to the data collection, the first author visited all sites to inform staff and residents about the study. The inclusion criteria for participants were: 1) experiences with co-occurring substance use and mental health problems; and 2) renting an apartment in one of the housing sites included in the study. Residents who did not have co-occurring problems were excluded. Diagnostic criteria were not relevant for participant eligibility for three reasons. Firstly, residency in supported housing is not based on diagnosis. Secondly, co-occurring problems are highly diverse (Lehman, 1996a), thus making diagnostic criteria unsuitable as a basis for recruitment. Lastly, national guidelines recommend an integrated approach to co-occurring problems (2012). The general

approach to recruitment was convenience sampling. Staff recruited participants directly. To ensure diversity in the sample, staff were recommended to avoid recruitment based on criteria such as perceived level of functioning, substance use, or symptom burden. Staff used different strategies of reaching out to residents (e.g., through presentations at resident meetings, flyers attached to bulletin boards in common areas, and conversations with individual residents). Approximately 135-150 residents were invited to participate. The final sample consisted of 104 participants, resulting in an estimated response rate of 69-77%.

Research settings

Twenty of the included sites were single-site housing facilities consisting of multiple co-located apartments with an on-site staff base. One site consisted of individual apartments spread within the community, with access to staff. Eleven residents lived in ordinary public housing, but were in contact with staff and used services associated with one of the respective housing sites. Nineteen sites were staffed on a daily basis. The number of residents at each respective site ranged from three to approximately 40-50 residents with co-occurring problems. Three housing sites were exclusively for men or women. Seventeen sites were exclusively for persons with substance use and/or mental health problems, while four sites also served other target groups. One site explicitly required abstinence as a prerequisite for residency.

Measures

Self-report questionnaires on recovery, quality of life, and staff support, as well as single items on sense of home and demographic variables, were distributed to the participants. The study introduction stated that the emphasis was on everyday life in

supported housing. The demographic variables included *gender, age, birth country, marital status, children, educational level, main source of income,* and *prior housing situation*. All items were single choice, except for source of income and previous housing situation, which were multiple choice. Birth country was an open question. Age was measured with six categories representing age in years (<21, 21-30, 31-40, 41-50, 51-60, and >60). Due to the underrepresentation of participants in the three former age categories, the variable was dichotomized for further analyses (≤ 40, and ≥ 41).

Recovery was measured with the Norwegian version (Biringer and Tjoflåt, 2018) of the Recovery Assessment Scale - Revised (RAS-R) (Giffort *et al*., 1995). The RAS-R covers five recovery domains: personal confidence and hope, willingness to ask for help, goal and success orientation, reliance on others, and not dominated by symptoms. The scale consists of 24 items on a five-point Likert scale, ranging from '*Strongly disagree'* (= 1), '*Disagree*' (= 2), '*Not sure'* (= 3), '*Agree*' (= 4), to '*Strongly agree'* (= 5), with higher scores indicating recovery (Cronbach's α = .89).

Quality of life was measured through assessments of life satisfaction and affect. *Life satisfaction* was measured with a Norwegian version (Clausen *et al*., 2015) of the Manchester Short Assessment of Quality of Life (MANSA) (Cronbach's α = .91) (Priebe *et al*., 1999). The MANSA consists of 16 items assessing life satisfaction and satisfaction across domains such as housing, occupation, education, economy, and family relationships. The seven-point Likert scale ranges from *'Could not be worse'* (= 1), '*Dissatisfied*' (= 2), '*Mostly dissatisfied'* (= 3), '*Mixed, both satisfied and dissatisfied*' (= 4), '*Mostly satisfied'* (= 5), '*Satisfied*' (= 6), to '*Could not be better'* (= 7). *Affect* was measured with six single items assessing positive and negative affect, in accordance with recommendations for the measurement of quality

of life, developed by the Norwegian Directorate of Health (Nes *et al*., 2018). *Positive affect* was assessed with two positively connoted affective states characterized by high arousal (happy, engaged) (Cronbach's α = .61). *Negative affect* was assessed with four negatively connoted affective states characterized by low or high arousal (worried, sad, angry, lonely) (Cronbach's α = .70). Negative affective states are considered to entail more nuances in experience than positive affective states (Nes *et al*., 2018). Negative affect has therefore been measured with a higher number of items than positive affect in the current study. Respondents were asked to what extent the mentioned affective states were experienced yesterday on an eleven-point scale ranging from '*Not at all yesterday*' (= 0) to '*All the time yesterday*' (= 10).

The issues in supported housing explored in this study were *staff support*, *length of residency, housing satisfaction*, *sense of home*, and *satisfaction with economy*. *Staff support* was measured with a Norwegian translation (Tollefsen and Borg, 2018) of the Brief INSPIRE (Williams *et al*., 2015). It consists of five items measuring staff support concerning connectedness, hope, identity, meaning and purpose, and empowerment. Support is scored on a five-point Likert scale from '*Not at all'* (= 0), '*Not much'* (= 1), '*Somewhat*' (= 2), '*Quite a lot*' (= 3), to '*Very much'* (= 4), with higher scores indicating higher levels of perceived support in the recovery process. In the present study, the measure assessed general staff support (Cronbach's α = .88). *Length of residency* was measured with four categories (< 3 months, 4-6 months, 7-12 months, and > 12 months). Length of residency was dichotomized (≤ 12 months, and ≥ 13 months) for further analyses, however, as most participants had resided in their current housing for over a year. *Housing satisfaction* was measured with three MANSA items, which were combined into a mean score (Cronbach's α = .77). These items measured satisfaction with housing,

neighborhood, and personal safety. *Sense of home* was assessed with two single items created for this study. The items were *"I feel that I can be at ease at home"* and "*I feel that I can be myself at home*". The five-point Likert-scale used to score these items ranged from '*Strongly disagree'* (= 1), '*Disagree*' (= 2), '*Not sure'* (= 3), '*Agree*' (= 4), to '*Strongly agree*' (= 5). A mean score was calculated (Cronbach's α = .85). *Satisfaction with economy* was measured with a single MANSA item asking respondents to indicate their level of satisfaction with their personal economy; "*How satisfied are you with your personal economy?*"

Data collection

The participants could choose to fill in the questionnaires independently, with assistance, or through a structured interview. Approximately 43 of the respondents completed the questionnaires independently. The remaining 61 of the respondents decided to fill in the questionnaires with some assistance or through a structured interview with the first author (52) or a member of staff (9). The data collection took place in meeting rooms or common areas at the housing sites, over chocolates and coffee. Participants received compensation (200 NOK, approximately 22 USD) per the rationale of reimbursing respondents for their time and contribution.

Statistical analysis

The first research question was addressed descriptively. To address the second research question, linear regression analyses were conducted. Recovery and quality of life were dependent variables, and staff support, housing satisfaction, sense of home, and satisfaction with personal economy were independent variables. All regression models controlled for gender and age. Preliminary analyses were

conducted to check for possible differences in scores for recovery, quality of life, and issues in supported housing, depending on response mode (i.e. whether participants completed the questionnaires independently, or with assistance from the first author or staff). There were no significant differences between groups. The data were analyzed with SPSS, version 25.

Ethical considerations

The study was notified to and recommended by the Norwegian Centre for Research Data (NSD) (Case No. 54661). Residents received oral and written information about the study. Participants notified the staff of their interest and provided informed consent. Residents were informed that participation was voluntary, consent could be withdrawn at any time, and that neither participation nor withdrawal would result in negative consequences for their housing or staff support. There were opportunities for debriefing with the first author after completing the questionnaire. Staff were asked to follow up with residents expressing distress after participation.

Results

Sample characteristics

The sample (N = 104, 76 men and 28 women) consisted of residents at 21 supported housing sites across six Norwegian cities (see Table 1). Eighty-nine percent of the participants were born in Norway, and 80% were aged 41 or older. Seventy-nine percent of the participants had resided at their current supported housing site for a minimum of 13 months. The most common previous housing situations were residing in one's own home, being without stable housing or staying in shelters, and residing in supported housing. Seventy-five percent of participants reported that their main

source of income was social security benefits. Social security benefits are administered by the Norwegian Labor and Welfare Administration, and include disability pensions and other welfare benefits.

[Insert Table 1 approximately here]

Recovery and quality of life

Out of five *recovery* subscales on the RAS-R (see Table 2), the highest scores were reported for the domains '*Goal and success orientation*' and '*Willingness to ask for help*'. The lowest score was reported for the domain '*Not dominated by symptoms'*.

For *life satisfaction*, as assessed by the MANSA (see Table 3), participants scored highest on satisfaction in living alone or with others, neighborhood, and housing. The lowest score was provided for satisfaction with personal economy. Responses regarding *positive affect* experienced yesterday were as follows: happy (n = 101, M = 5.42, SD = 3.26) and engaged (n = 98, M = 5.58, SD = 3.46). For *negative affect*, the following scores were reported: worried (n = 99, M = 3.82, SD = 3.02), sad (n = 98, M = 3.49, SD = 3.16), angry (n = 97, M = 2.26, SD = 2.95), and lonely (n = 100, M = 4.31, SD = 3.78). The overall scores for positive and negative affect were M = 5.48, SD = 2.91, and M = 3.48, SD = 2.39, respectively.

[Insert Table 2 approximately here]

[Insert Table 3 approximately here]

Issues in supported housing

For *staff support* (see Table 4), as measured with the Brief INSPIRE, the highest score was reported for staff assistance in receiving support from others. The lowest score was reported for support in having hopes for the future. The score for *housing satisfaction* (*n* = 103), was *M* = 4.73, *SD* = 1.59. The score for the *sense of home* item "*I feel that I can be at ease at home*" (*n* = 100) was *M* = 3.26, *SD* = 1.49. For the item "*I feel that I can be myself at home*" (*n* = 102), the score was *M* = 3.75, *SD* = 1.35. The overall score for sense of home was *M* = 3.51, *SD* = 1.33.

[Insert Table 4 approximately here]

Associations between recovery, quality of life, and issues in supported housing

Results for all the regression analyses are reported in Table 5. The dependent variables are represented in rows, while the independent variables are represented in columns. *Staff support* was positively associated with recovery overall (R^2 = .15, *p* < .001) and all recovery domains except '*Not dominated by symptoms'*. The strongest associations were observed between staff support and '*Goal and success orientation',* as well as between staff support and '*Reliance on others'*. Furthermore, there were positive associations between staff support and life satisfaction (R^2 = .23, *p* < .001), as well as between staff support and satisfaction with life domains such as neighborhood (R^2 = .35, *p* < .001), housing (R^2 = .23, *p* < .001), and family relationships (R^2 = .22, *p* < .001). There was a negative association with negative affect (R^2 = .09, *p* = .01), in the sense that less perceived staff support was linked with more negative affect, and more staff support with less negative affect. No association was found between staff support and positive affect.

Length of residency was not associated with recovery, life satisfaction, or positive or negative affect in any of the conducted analyses. The results for the regression model measuring associations between recovery, quality of life, and length of residency have therefore been excluded from Table 5.

Housing satisfaction was positively associated with overall recovery ($R^2 = .14$, $p < .001$), and with all recovery subscales except '*Not dominated by symptoms*'. The strongest associations were found for housing satisfaction and '*Willingness to ask for help*' ($R^2 = .13$, $p < .001$), and '*Goal and success orientation*' ($R^2 = .15$, $p < .001$). Housing satisfaction was further positively associated with general life satisfaction ($R^2 = .39$, $p < .001$). There was a positive association between housing satisfaction and positive affect ($R^2 = .06$, $p = .02$), and a negative association between housing satisfaction and negative affect ($R^2 = .09$, $p = .01$). Lower housing satisfaction was thus associated with more negative affect, and higher housing satisfaction with less negative affect.

Sense of home was found to be positively associated with recovery overall ($R^2 = .23$, $p < .001$). It was further associated with all subscales except '*Not dominated by symptoms*'. Sense of home was positively associated with life satisfaction ($R^2 = .28$, $p < .001$) and satisfaction with most life domains, including satisfaction with neighborhood ($R^2 = .27$, $p < .001$), and personal safety ($R^2 = .17$, $p < .001$). Sense of home was positively associated with positive affect ($R^2 = .10$, $p = .003$) but not with negative affect.

Satisfaction with personal economy was positively associated with overall recovery ($R^2 = .11$, $p = .001$). In addition, satisfaction with personal economy was positively associated with three recovery domains, but not with the domains '*Reliance on others*' and '*Not dominated by symptoms*'. Satisfaction with personal

economy was positively associated with overall life satisfaction ($R^2 = .19$, $p < .001$). There was a negative association between satisfaction with personal economy and negative affect ($R^2 = .07$, $p = .02$), indicating that lower satisfaction was linked with negative affect. No association was found between satisfaction with personal economy and positive affect.

[Insert Table 5 approximately here]

Discussion

This study demonstrates clear associations between recovery, quality of life, and core issues in supported housing, namely staff support, housing satisfaction, sense of home, and satisfaction with personal economy. The associations are consistent across recovery domains, apart from symptom domination, which is not associated with any of the measured issues in supported housing. The demographic characteristics of the study sample correspond with a wider population of service users with substance use problems across Norwegian municipalities (Hustvedt *et al.*, 2018) and persons in Norway who experience homelessness (Dyb and Lid, 2017), for instance in regards to the observed gender distribution. The results of the current study are first and foremost generalizable to men with co-occurring problems, and to supported housing delivered in the form of co-localized apartments with on-site staff in urban contexts.

Reported levels of recovery and quality of life

The sample reported relatively high scores for the recovery domains pertaining to goal and success orientation and willingness to ask for help, compared to the lower

scores for the more clinical domain measuring no experienced symptom domination. Measures of personal and clinical recovery are not highly correlated (Andresen, Caputi and Oades, 2010), which might be a function of the distinction between personal and clinical recovery (Rowe and Davidson, 2016). The results for recovery in the current study were comparable to the results of a cross-sectional study with persons with mental health problems in specialist or community care (Biringer and Tjoflåt, 2018).

The scores for life satisfaction observed in this study were comparable to the results of a study among persons in Assertive Community Treatment in Norway (Clausen *et al*., 2015). Likewise, the scores were comparatively lower for general life satisfaction and satisfaction with various domains than the scores observed in a clinically oriented Dutch study examining the differences in recovery between groups of residents in supported housing (Bitter *et al*., 2016).

Associations between recovery, quality of life, and issues in supported housing

The residents scored relatively low on the measure of staff support if taking the range of possible scores into consideration. By contrast, qualitative studies on first-person experiences with staff support have emphasized the presence of positive experiences and relationships with staff working in health and social services on the municipal level (Andvig and Hummelvoll, 2015; Biong and Soggiu, 2015), although challenges in access to staff support and services have been identified (Gonzalez and Andvig, 2015a). As illustrated in reviews (Gonzalez and Andvig, 2015a; Ness *et al*., 2014), staff support appears to be recovery-promoting and may contribute to enhancing quality of life. The results of the current study strengthen the conclusions of qualitative research in expressing the importance of staff support for recovery.

RECOVERY AND QUALITY OF LIFE

Staff support appears important to all aspects of recovery except for symptom domination. In a Norwegian context, supported housing is not intended to be a clinical or treatment arena. As such, the associations with all recovery domains, except symptom domination, perhaps point to the differences between clinical versus everyday support. Interestingly, staff support was strongly associated with different issues related to supported housing, including personal safety and neighborhood satisfaction, as well as to relational matters, such as satisfaction with family relationships and friendships.

When examining relationships between recovery, quality of life and length of residency, no significant associations could be established, arguably due to lack of sensitivity in measurement of length of residency. Most residents had lived in their current apartment for over a year, thus making it difficult to identify any nuances due to length of residency.

Housing satisfaction was positively associated with all recovery variables except symptom domination. Furthermore, housing satisfaction was associated with life satisfaction, higher positive affect, and lower negative affect. This indicates the relevance of experiencing satisfaction with housing, neighborhood, and personal safety to recovery-oriented rehabilitation. The tendency for residents to be content with their housing may therefore point to a strength in the delivery of supported housing services. The role of different aspects of housing satisfaction in relation to recovery and quality of life have been researched in other contexts (Brolin *et al.*, 2015; O'Connell *et al*., 2006) and have generally pointed in the direction of these constructs being interconnected.

Regarding sense of home, the results point to residents experiencing some limitations in feeling at home at their current place of residency. When viewed in

contrast to the relatively high scores for housing satisfaction, the moderate scores for sense of home could possibly imply that while supported housing covers basic housing needs, it does not necessarily imply the presence of a home. Moreover, sense of home was consistently associated with recovery in all domains, except symptom domination, and with life satisfaction and positive affect. The necessity of residents being involved in making choices concerning their housing has been pointed out as relevant for developing a sense of home (Andvig and Hummelvoll, 2015). It is also worth discussing whether issues such as having a sense of home are related to residing in single-site housing with co-localized apartments and the possible resemblance of such housing sites to institutions (Lindvig *et al.*, 2019).

The participants in the present study scored relatively low on satisfaction with various social relationships, such as sex life, friendships, and family relationships. In the regression analyses, satisfaction with these domains was associated with sense of home and partially with staff support. A question of relevance is therefore whether features pertaining to the format of supported housing (e.g., house rules, including the regulation of visits) can play a role in enabling or hindering social interactions in everyday life (Andersen *et al*., 2016), which may influence experienced satisfaction with social relationships and, consequently, impact recovery and quality of life.

Dissatisfaction with personal economy has been observed in studies with similar target groups, with the implications of economic strain being interpreted as a major obstacle to recovery and health (Brekke *et al*., 2017; Sælør *et al*., 2019). The issue of economy appears fundamentally intertwined with supported housing, as residents pay rent and a majority receive social security benefits. In the current study, higher satisfaction with personal economy was associated with better recovery and life satisfaction, and lower satisfaction with lower recovery and life

satisfaction. Reports of low satisfaction with personal economy could also be observed along with more negative affect. Consistent with qualitative research (Brekke *et al.,* 2017), the study argues that issues connected to personal economy can impede or promote recovery and quality of life. In the case of residents with co-occurring problems, dissatisfaction with economy appears to be a potential barrier.

Strengths and limitations

As far as the authors are aware, this is the first cross-sectional study to investigate recovery, quality of life, and issues in supported housing, among residents with co-occurring problems in Norway. The sample size, response rates, and the number of contributing sites strengthen the significance of the study. The flexibility of the approach to data collection, in terms of participants having options in how to complete the questionnaires, can be viewed as a strength in enabling participation, thus increasing the generalizability of the findings. This approach could be problematized, however, as lack of standardization may be considered a methodological weakness. In this case, statistical analyses yielded no significant differences regardless of response mode. Furthermore, the financial reimbursement may have been the main motivation to participate for some, which could be problematic in terms of recruitment and as an ethical issue. However, many respondents expressed a genuine wish to inform practice and change the system for themselves and others.

Given the cross-sectional design, the study does not allow for conclusions of causality. The Cronbach's alpha levels were generally acceptable (> .70), although the alpha level for positive affect may be considered questionable (Pallant, 2013). The utilization of single items, for instance to measure satisfaction with personal

economy, is an important limitation. The lack of specificity pertaining to the way in which staff support was recorded constitutes another significant limitation. Residents expressed some uncertainty as to which services they should keep in mind, which made it difficult to compare the scores with other studies addressing supporting relationships within specific services (Biong and Soggiu, 2015; Brekke *et al*., 2017) or between residents and specific members of staff (Lindvig *et al*., 2019). Selection bias cannot be excluded due to the convenience sampling strategy; however, the sample is parallel to a national-wide sample of persons with substance use problems (Hustvedt *et al*., 2018), demonstrating the relevance and potential generalizability of the findings.

Conclusions

This study provides an empirical demonstration of the relevance of staff support, housing satisfaction, sense of home, and satisfaction with personal economy, for recovery and quality of life among the residents in supported housing. It confirms the role of everyday contextual factors in recovery, as has been illustrated across a range of qualitative studies on recovery-oriented rehabilitation. The findings imply that supported housing holds the potential to be a recovery-promoting setting for residents with co-occurring problems. However, the results indicate that there are several challenges to address in these settings, particularly regarding staff support, sense of home, and satisfaction with personal economy. As such, aspects of supported housing may also hinder recovery and quality of life. Based on the findings, it is recommended that housing services facilitate the possibilities to develop a sense of home. Furthermore, it is a core issue to establish strategies that address residents' financial challenges and ensure that residents are informed of

their financial rights as citizens. Supported housing sites are encouraged to work thoroughly in line with recovery-oriented values in dialogue with residents. Further quantitative research should explore the role of sense of home and satisfaction with personal economy using standardized measures, as well as examine associations between recovery, quality of life and other issues in supported housing, for instance pertaining to housing types. The directionality in the relationships between recovery, quality of life, and issues in supported housing, should be explored using longitudinal designs.

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Table 1. Demographic characteristics†

		Men *n* (%)	Women *n* (%)	Overall *n* (%)
Age	< 41	14 (18.7)	6 (22.2)	20 (19.6)
	≥ 41	61 (81.3)	21 (77.8)	82 (80.4)
Place of birth	Norway	66 (86.8)	27 (96.4)	93 (89.4)
	Other country	10 (13.2)	1 (3.6)	11 (10.6)
Marital status	Single	54 (73.0)	16 (59.3)	70 (69.3)
	Married/cohabitating	3 (4.1)	4 (14.8)	7 (6.9)
	Divorced/separated	10 (13.5)	5 (18.5)	15 (14.9)
	Widow/widower	3 (4.1)	1 (3.7)	4 (4.0)
	Other	4 (5.4)	1 (3.7)	5 (5.0)
Children/stepchildren	< 18	11 (27.5)	8 (34.8)	19 (30.2)
	≥ 18	29 (72.5)	15 (65.2)	44 (70.0)
Education	Elementary school	21 (29.2)	7 (26.9)	28 (28.6)
	High school (partial)	14 (19.4)	7 (26.9)	21 (21.4)
	High school (complete)	12 (16.7)	4 (15.4)	16 (16.3)
	Further education/courses	20 (27.8)	8 (30.8)	28 (28.6)
	Bachelor's degree/equivalent	4 (5.6)	0 (0)	4 (4.1)
	Master's degree/equivalent	1 (1.4)	0 (0)	1 (1.0)
Source of income*	Salary	8 (9.6)	1 (3.7)	9 (8.2)
	Social security benefits	61 (73.5)	21 (77.8)	82 (74.6)
	Other income	14 (16.9)	5 (18.5)	19 (17.3)
Length of residency	< 13 months	16 (21.6)	5 (19.2)	21 (21.0)
	≥ 13 months	58 (78.4)	21 (80.8)	79 (79.0)
Previous housing*	Own home	32 (42.7)	8 (29.6)	40 (39.2)
	Supported housing	16 (27.6)	7 (31.8)	23 (28.8)
	With family	5 (8.6)	0 (0)	5 (6.3)
	With friends	8 (13.8)	2 (9.1)	10 (12.5)
	Without stable housing/shelters	17 (29.3)	8 (36.4)	25 (31.3)
	Other	12 (20.7)	5 (22.7)	17 (21.3)

† Number of participants and percentages are based on responses for each given item.
* Multiple choice items.

Table 2. Descriptive statistics of recovery[†*a]

	n	*M*	*SD*	95% CI
Fear doesn't stop me from living the way I want to	102	3.43	1.34	(3.17-3.69)
I can handle what happens in my life	101	3.51	1.12	(3.29-3.74)
I like myself	101	3.48	1.26	(3.23-3.72)
If people really knew me, they would like me	102	3.90	.96	(3.71-4.09)
I have an idea of who I want to become	101	3.68	1.18	(3.45-3.92)
Something good will eventually happen	102	4.03	1.00	(3.83-4.23)
I'm hopeful about the future	102	3.86	1.14	(3.64-4.09)
I continue to have new interests	100	3.78	1.32	(3.52-4.04)
I can handle stress	101	3.56	1.28	(3.31-3.82)
Personal confidence and hope	104	3.71	.76	(3.56-3.86)
I know when to ask for help	101	3.92	.97	(3.73-4.11)
I am willing to ask for help	99	3.75	1.23	(3.50-3.99)
I ask for help when I need it	102	3.74	1.17	(3.51-3.96)
Willingness to ask for help	102	3.80	.96	(3.61-3.99)
I have a desire to succeed	104	4.38	.96	(4.20-4.57)
I have my own plan for how to stay or become well	104	4.17	1.06	(3.97-4.38)
I have goals in life that I want to reach	102	4.22	.91	(4.04-4.39)
I believe that I can meet my current goals	104	4.07	1.01	(3.87-4.26)
I have a purpose in life	102	3.98	1.06	(3.77-4.19)
Goal and success orientation	104	4.16	.80	(4.01-4.32)
Even when I don't care about myself, other people do	104	3.64	1.17	(3.42-3.87)
I have people I can count on	102	3.95	1.06	(3.74-4.16)
Even when I don't believe in myself, other people do	102	3.66	1.16	(3.43-3.88)
It is important to have a variety of friends	101	3.62	1.30	(3.37-3.88)
Reliance on others	104	3.69	.87	(3.52-3.86)
Coping with my mental illness is no longer the main focus of my life	98	3.38	1.30	(3.12-3.64)
My symptoms interfere less and less with my life	99	3.42	1.33	(3.16-3.69)
My symptoms seem to be a problem for shorter periods of time	95	3.49	1.11	(3.27-3.72)
Not dominated by symptoms	100	3.45	1.00	(3.25-3.65)
Total (mean of items)	104	3.79	.62	(3.66-3.91)

[†] Measured with the 24-item Recovery Assessment Scale (RAS-R).
[*] Possible scores range between 1 ('*Completely disagree*') and 5 ('*Completely agree*').
[a] Items grouped according to subscale. Subscales presented in bold.

Table 3. Descriptive statistics of life satisfaction[†*]

	n	*M*	SD	95% CI
Satisfaction with…				
Occupation	102	4.35	1.85	(3.99-4.72)
Education	98	4.23	1.90	(3.85-4.62)
Economy	103	3.34	1.92	(2.96-3.72)
Number of friends	101	4.44	1.91	(4.06-4.81)
Friendships	98	4.48	1.80	(4.12-4.84)
Leisure	103	4.36	1.80	(4.01-4.71)
Housing	101	4.78	1.89	(4.41-5.16)
Neighborhood	103	4.79	1.89	(4.42-5.16)
Personal safety	102	4.63	1.86	(4.26-4.99)
Living alone/together	100	4.82	1.72	(4.48-5.16)
Marital status	93	4.39	2.00	(3.98-4.80)
Sex life	93	3.87	2.05	(3.45-4.29)
Family relationships	99	4.04	2.01	(3.64-4.44)
Physical health	103	4.15	1.80	(3.79-4.50)
Mental health	102	4.48	1.71	(4.15-4.82)
Life at large	103	4.44	1.67	(4.11-4.76)
Total (mean of items)	103	4.35	1.15	(4.12-4.57)

[†] Measured with the 16-item Manchester Short Assessment of Quality of Life (MANSA).

[*] Possible scores range between 1 ('*Could not be worse*') and 7 ('*Could not be better*').

Table 4. Descriptive statistics of staff support[†*]

Items	*n*	*M*	*SD*	95% CI
Feeling supported by others	104	2.44	1.14	(2.22-2.65)
Hope and dreams for the future	102	2.00	1.28	(1.72-2.22)
Feeling good about myself	104	2.22	1.14	(1.98-2.43)
Doing meaningful things	103	2.24	1.31	(1.99-2.50)
Feeling in control in life	102	2.14	1.27	(1.91-2.41)
Support score[**]	101	54.10	25.01	(50.17-60.04)

[†] Measured with the five-item Brief INSPIRE.

[*] Possible scores range between 0 ('*Not at all*') and 4 ('*Very much*').

[**] The total score range was between 0 and 100.

Table 5. Linear regression models† describing variance in recovery and quality of life as a function of issues in supported housing

	Staff support[a]			**Sense of home**[b]			**Housing satisfaction**[c]			**Satisfaction with economy**[d]		
	B	95% CI for B	β	B	95% CI for B	β	B	95% CI for B	β	B	95% CI for B	β
Recovery[1]	.01	(.01-.02)***	.39	.23	(.14-.32)***	.49	.15	(.07-.22)***	.38	.11	(.05-.17)***	.33
Personal confidence and hope	.01	(.00-.02)**	.30	.27	(.17-.38)***	.49	.15	(.06-.24)***	.32	.10	(.02-.17)*	.25
Willingness to ask for help	.01	(.00-.02)*	.22	.33	(.19-.47)***	.45	.22	(.10-.34)***	.36	.15	(.05-.25)**	.29
Goal and success orientation	.01	(.01-.02)***	.41	.17	(.05-.29)**	.29	.18	(.08-.27)***	.34	.14	(.06-.21)***	.32
Reliance on others	.01	(.01-.02)***	.41	.23	(.11-.35)***	.37	.15	(.04-.25)**	.27	.09	(-.00-.18)	.19
Not dominated by symptoms	.00	(-.01-.01)	.10	.07	(-.09-.23)	.09	.06	(-.07-.19)	.10	.06	(-.05-.16)	.11
Quality of life												
Positive affect[2]	.02	(-.01-.04)	.16	.66	(.24-1.09)**	.31	.42	(.06-.77)*	.23	.25	(-.04-.55)	.17
Negative affect[3]	-.03	(-.05-.01)**	-.27	-.32	(-.69-.05)	-.18	-.42	(-.71-.12)**	-.28	-.31	(-.55-.06)*	-.25
Life satisfaction[4]												
Satisfaction with…												
Life in general	.03	(.02-.04)***	.46	.65	(.42-.87)***	.51	.63	(.46-.80)***	.60	.34	(.19-.50)***	.39
Occupation	.02	(.00-.04)*	.25	.47	(.19-.76)***	.33						
Education	.03	(.01-.04)***	.33	.32	(.04-.61)*	.23						
Economy	.03	(.02-.05)***	.39	.51	(.23-.79)***	.36						
Number of friends	.03	(.01-.04)***	.33	.30	(-.01-.60)*	.21						
Friendships	.03	(.01-.04)***	.36	.55	(.28-.82)***	.41						
Leisure	.02	(.01-.04)**	.32	.48	(.22-.75)***	.36						
Housing	.03	(.02-.05)***	.44	.58	(.30-.85)***	.40						
Neighborhood	.05	(.03-.06)***	.59	.75	(.49-1.00)***	.52						
Personal safety	.03	(.02-.05)***	.42	.58	(.32-.85)***	.42						
Living alone/with others	.03	(.01-.04)***	.38	.28	(.01-.54)*	.22						
Marital status	.02	(.00-.04)*	.25	.42	(.11-.73)**	.28						
Sex life	.01	(-.00-.03)	.16	.37	(.05-.70)*	.24						
Family relationships	.04	(.02-.05)***	.47	.41	(.10-.71)**	.27						
Physical health	.02	(.01-.04)***	.32	.24	(-.04-.51)	.18						
Mental health	.02	(.00-.03)**	.27	.30	(.04-.56)*	.23						

† All models controlled for age and gender.
Length of residency was modeled as an independent variable, but was not reported in the final table due to non-significant results.
* *p* value significant at the .05 level, ** *p* value significant at the .01 level, *** *p* value significant at the .001 level.
[a] Total score for the Brief INSPIRE. Possible scores range between 0-100.
[b] Based on the mean score of the items "*I feel that I can be at ease at home*" and "*I feel that I can be myself at home*". Possible scores range between 1-5.
[c] Based on the mean score of three MANSA items; satisfaction with housing, neighborhood, and personal safety.
[d] Measured with the single MANSA item on satisfaction with personal economy.
[1] Mean score for Recovery Assessment Scale (RAS-R). Possible scores range between 1-5.
[2] Index based on mean scores for positive affect (happy, engaged). Possible scores range between 1-10.

[3] Index based on mean scores for negative affect (worried, sad, angry, lonely). Possible scores range between 1-10.
[4] Mean scores for Manchester Short Assessment of Quality of life (MANSA) items. Possible scores range between 1-7.