



# Exploring the factors that predict quality of life, and the relationship between recovery orientation and quality of life in adults with severe mental health difficulties

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## Abstract

Integration of intrapersonal, interpersonal and environmental factors has been proposed to enhance understanding of psychological quality of life (QOL) in adults with severe and enduring mental illness (SMI). This study examined the contribution of factors such as self-stigma, coping style and personal recovery orientation to psychological QOL in SMI; compared QOL outcomes to norms from the general population; and examined the association between personal recovery orientation and overall QOL. 70 participants with SMI completed measures of QOL (including psychological QOL), personal recovery orientation, coping, perceived stigma, psychological distress and demographic variables. Regression analysis found that only adaptive coping and psychological distress contributed significantly to psychological QOL. Personal recovery orientation was significantly associated with overall subjective QOL. Participants had lower QOL in the psychological and social relationships domains compared to the general population. Findings support the positive contribution of adaptive coping to psychological QOL, and the positive association between personal recovery orientation and overall QOL.

**Keywords** Quality of life · Recovery · Severe and enduring mental illness · WHOQOL-BREF

## Introduction

Promotion of quality of life (QOL) through recovery-oriented care in the community represents an overarching goal of mental health care for individuals with complex mental health problems (Bitter et al., 2017). A clear understanding of personal and environmental factors impacting QOL and personal recovery in severe mental illness (SMI), and the relationships between them, is necessary to inform both the development of appropriate interventions and staff understanding of key areas in rehabilitation.

Self-related, personal constructs, and environmental and societal factors (e.g. social stigma) demonstrate strong associations with psychological well-being and QOL in SMI, while weaker associations have been found for sociodemographic variables, such as age (Fleury et al., 2018; Hansson,

2006; Vatne & Bjørkly, 2008; Thornicroft, 2006; Zissi et al., 1998). Higher levels of self-stigma may also be a barrier to recovery for adults with SMI (Del Rosal et al., 2021; Yanos et al., 2008). However, there is limited research into the association between personal recovery and QOL or well-being outcomes within a broad rehabilitation and recovery population. Furthermore, there are limited published studies comparing QOL outcomes in an SMI population to controls or those in the general population (Brazier et al., 2014). The aims of this study were to (i) examine the contribution of subjectively experienced stigma, coping style and personal recovery orientation to psychological QOL among service users with SMI; (ii) compare QOL outcomes in this population to norms from the general population and (iii) examine the association between personal recovery orientation and overall subjective QOL.

## Quality of Life, Personal Recovery and Well-Being

The WHO defines QOL as an “*individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.*” (WHOQOL Group,

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1998). This definition of QOL is thought to overlap conceptually with subjective well-being (Camfield & Skevington, 2008; Medvedev & Landhuis, 2018). The concept of recovery has also become a focus of mental health policy for those with SMI (Bonney & Stickley, 2008; Silverstein & Bellack, 2008). The most widely cited definition of personal recovery overlaps closely with the goal of promoting QOL (Anthony, 1993): “*recovery is a deeply personal, unique process of changing one’s attitudes, values, feelings, goals, skills and/or roles. It is a way of living a satisfying, hopeful and contributing life even within the limitations caused by illness.*” Relative to traditional, illness-oriented models, recovery is health-oriented and focuses on “promoting well-being” (Slade, 2010). While various biological, environmental, social and psychological factors have been linked to QOL in SMI (Sánchez et al., 2016), there is limited quantitative research exploring the concept of personal recovery, particularly its relationship with QOL and well-being (Leamy et al., 2011; Schrank et al., 2013).

## Stigma and Coping in SMI

Mental illness can be considered a stigmatized identity shown to contribute to poor psychological well-being (Quinn & Earnshaw, 2013). Levels of societal stigma are associated with levels of both self-stigma and empowerment among individuals with mental illness (Del Rosal et al., 2021; Evans-Lacko et al., 2012), while internalized stigma has been linked to lower psychological well-being (Quinn & Earnshaw, 2013; Ritsher & Phelan, 2004). When individuals with mental illness internalize stigmatizing societal attitudes, they experience lower self-efficacy, self-esteem (Del Rosal et al., 2021; Corrigan et al., 2006; Link et al., 2001; Livingston & Boyd, 2010) and QOL (Del Rosal et al., 2021; Alonso et al., 2009; Livingston & Boyd, 2010).

Having a stigmatized identity can be one of many sources of stress associated with having an SMI, impacting negatively on QOL (Roe et al., 2006). Difficulties coping with such stressors can further impact QOL and recovery (Phillips et al., 2009) whereas greater adaptive coping has been associated with more positive outcomes, higher QOL, reduced symptom levels and greater self-efficacy (Holubova et al., 2016; Ritsner et al., 2003). Coping behaviour is also associated with clinical, functional and personal recovery (Roosenschoon et al., 2019). Various definitions and models of coping have been proposed, emphasising the interaction between psychosocial stressors, well-being and coping (Yanos & Moos, 2007; Lazarus & Folkman, 1984; Schwarzer & Taubert, 2002). Broadly speaking, adaptive coping strategies involve taking direct action, planning or seeking information, emotional support or resources. Maladaptive coping strategies seek immediate relief from stress

or negative feelings without addressing the stressor itself (Lazarus & Folkman, 1984). Meyer (2001) found that higher adaptive coping is associated with lower severity of positive symptoms of schizophrenia and higher psychological well-being (Meyer, 2001) and greater community adaptation (Lestari et al., 2020).

## Overview and Hypotheses

Both QOL and personal recovery have been identified as important constructs within SMI, and there have been a number of theoretical frameworks that have attempted to integrate variables such as self-stigma and coping in an attempt to understand determinants of QOL in SMI (Schrank et al., 2013; Yanos & Moos, 2007). However, there is limited empirical research into the associations between these factors within a broad SMI population. The current study will examine the association between overall QOL, and “Self-defined Overall Well-Being” (Schrank et al., 2013), and personal recovery orientation. It will also explore potential determinants of QOL. It was hypothesised that:

1. Self-reported overall QOL would be lower across all domains among participants, compared to general population norms (Hawthorne et al., 2006).
2. Overall QOL and personal recovery orientation would be significantly correlated.
3. Psychological QOL would be predicted by level of psychological distress, perceived stigma, adaptive coping, maladaptive coping and personal recovery orientation.

## Method

### Study Design

Using a cross-sectional design, data was collected at five separate sites for individuals with a psychiatric condition attending rehabilitation and recovery services.

### Participants

70 participants<sup>1</sup> were recruited between May 2017 and December 2018 (see Table 1 for participant demographics). Inclusion criteria required participants to be attending a rehabilitation and recovery service, have a primary mental

<sup>1</sup> A-priori power analysis using G\*Power 3.1 software (Faul et al., 2009) estimated a minimum of 68 participants to detect a small effect size ( $d=0.2$ ,  $p<0.05$ ) for linear multiple regression with 5–11 predictors

**Table 1** Sociodemographic characteristics of participants (n=70)

	Socio-demographic variables	Total Sample (n=70)	
		n/ mean	%/ SD
Age in years (mean, SD)		48.01	10.79
Years in service (mean, SD)		22.88	9.41
Gender (n, %)	Female	27	38.6
	Male	43	61.4
Diagnosis (n, %)	Schizophrenia/ Schizoaffective	52	75.4
	Bipolar Affective Disorder	11	15.9
	Anxiety/Depression	4	5.7
	Personality disorder	1	1.4
	Conversion disorder	1	1.4
Accommodation (n, %)	Supported or supervised housing	52	76.5
	Independent/Family home	16	23.5
Education (n, %)	Primary	17	25.4
	Secondary	42	62.7
	Third level	8	11.9

health diagnosis as per DSM-V or ICD-10 criteria and an illness duration of greater than 2 years. Most had more than one mental health diagnosis. The principal diagnosis, defined as the condition that occasioned first admission to services (Center for Health Statistics, 2017), was selected for reporting in the study.

## Measures

### WHOQOL-BREF

The WHOQOL-BREF, an abbreviated version of the WHOQOL-100, is a multilingual, cross-culturally sensitive, self-report scale of quality of life (WHOQOL Group, 1995). 28 items rated on a 5-point Likert scale produce four domain scores: (i) Physical QOL, (ii) Psychological QOL, (iii) Social Relationships QOL and (iv) Environmental QOL. An Overall QOL score can also be obtained from the total of two item scores. Domain scores were transformed to equivalent WHOQOL-100 scores according to the SPSS syntax detailed in the WHOQOL-BREF manual (WHOQOL Group, 1995). Evidence from a meta-analysis identified that, across eleven different cultures, all WHOQOL-BREF domains detect relevant and meaningful change in quality of life, indicating its validity as a measure of well-being (Skevington & Epton, 2018). The Psychological QOL subdomain was selected to measure subjective well-being due to evidence supporting associations between this domain and measures of subjective well-being (Medvedev & Landhuis, 2018).

While no official general population norms have been published, population norms have been published from Australia (Hawthorne et al., 2006) and France (Baumann et al., 2010). Good internal consistency, (0.66 to 0.84), excellent discriminant validity between ill and well respondents and high test-retest

reliability across domains (0.66 to 0.87) have been demonstrated (WHOQOL Group, 1998). Later research confirmed the four-factor structure with an adult psychiatric outpatient population, with all four domains correlating with dimensions on the Perceived Stress Scale (PSS) (Cohen et al., 1983), a robust predictor of health and disease (Trompenaars et al., 2005).

### The Stigma Scale

The Stigma Scale is a standardised, self-report measure of stigma associated with mental illness (King et al., 2007) with 28 items rated on a 5-point Likert scale, ranging from strongly agree to strongly disagree. It contains three subscales: (1) discrimination (scores ranging from 13 to 65), (2) disclosure (range: 10–50) and (3) positive aspects of mental illness (range: 5–25) with higher scores indicating more stigma for the discrimination and disclosure subscales, and lower likelihood of experiencing positive aspects of mental illness for the third subscale. A total stigma score (range: 28–140) can also be obtained. Good internal consistency for the subscales (ranging from 0.64 to 0.87) and good concurrent validity with the Self-Esteem Scale have been established (King et al., 2007).

### The Questionnaire about the Process of Recovery

The 15-item QPR (Law et al., 2014), developed from the original 22-item QPR (Neil et al., 2009), is a self-report measure of personal recovery. Items are scored on a 5-point Likert scale, ranging from 0 (disagree strongly) to 4 (agree strongly), with higher total scores indicating higher levels of recovery. Adequate internal consistency (0.93), test-retest reliability ( $r=0.70$ ), internal consistency (0.89), convergent validity (0.73), and sensitivity to change (0.40) have been demonstrated (Law et al., 2014; Neil et al., 2009).

### The Depression Anxiety Stress Scale–21 (DASS-21)

The DASS-21 is a 21-item, standardised, self-report measure (Psychology Foundation of Australia, 2018) derived from the DASS-42 (Lovibond & Lovibond, 1995). The DASS-21 consists of three subscales (Depression, Anxiety and Stress), each with 7 items. Items are scored on a 4-point Likert scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time), with higher scores reflecting greater symptom severity. Total scores, reflecting overall emotional/psychological distress, can be calculated by adding all 21 items (Henry & Crawford, 2005; Osman et al., 2012). Good internal consistency of scale scores, ranging from 0.82 to 0.97, has been demonstrated (Henry & Crawford, 2005; Lovibond & Lovibond, 1995). The factor structure of the scale has also been supported (Page et al., 2007) and its use within a psychiatric population has been validated and shown to detect change (Ng et al., 2007). Good convergent and discriminant validity have been found through comparisons with other validated measures of depression and anxiety (Henry & Crawford, 2005).

### Brief COPE

The Brief COPE, an abbreviated version of the COPE Inventory (Carver et al., 1989), is a 28-item, standardised self-report measure with 14 sub-scales (Carver, 1997). Each subscale has two items rated on a 4-point Likert scale, from 1 (I haven't been doing this at all) to 4 (I've been doing this a lot). Studies have supported the grouping of subscales into Adaptive and Maladaptive coping domains (Meyer, 2001). The Brief Cope has been found to predict clinically relevant outcomes (Meyer, 2001), has acceptable internal consistency (ranging from 0.50–0.90 for subscales), and adequate structural validity (Carver, 1997). There is strong evidence in support of the cross-validation and concurrent validity of the Brief COPE (Doron et al., 2014).

### Procedure

Information leaflets were provided across the 5 services and the research team informally presented information about the study to service users during day service hours. Those interested completed an expression of interest form and were subsequently invited to complete the research at a suitable time and date during service hours. Service users were also approached informally to participate if they had not been attended the information presentation. Informed, written consent was obtained from participants prior to proceeding with the research. 82% of those approached about the research chose to participate.

**Table 2** Chronbach's alpha, means and standard deviation for all variables (n = 70)

	Cronbach's alpha ( $\alpha$ )	M $\pm$ SD
Psychological QOL	0.80	61.7 $\pm$ 19.91
Physical QOL	0.67	69.52 $\pm$ 15.67
Social Relationships QOL	0.59	57.94 $\pm$ 19.85
Environmental QOL	0.76	72.81 $\pm$ 15.36
Overall QOL	0.68	14.91 $\pm$ 3.6
Recovery Orientation (Total QPR score)	0.92	43.06 $\pm$ 10.79
Symptoms (Total DASS score)	0.94	20.22 $\pm$ 12.68
Adaptive Coping (Brief COPE)	0.92	40.08 $\pm$ 12.36
Maladaptive Coping (Brief COPE)	0.67	20.43 $\pm$ 5.11
Stigma (Total Stigma Scale score)	0.89	82.03 $\pm$ 17.38

Participants were supported to complete the paper-based measures in a private interview room at their day service. Standardised instructions for measures were communicated to participants verbally. Participants were invited to complete the self-report measure independently, while the researcher was available to answer any questions. Due to literacy difficulties, some participants asked the researcher to read through each item. On these occasions, the researcher read each item in a neutral tone of voice and marked the response communicated by the participant on the measure. The total completion time varied across participants but took, on average, 60 minutes. Participants had the option to complete the test battery over two sessions scheduled no more than one week apart.

## Results

IBM SPSS Statistics Version 24.0 for Windows was used for all analyses. Missing data analyses suggested that missing data was missing at random (Little's MCAR test non-significant). Less than 5% of the values were missing from all variables (maximum 3 cases), with one exception. Item 21 ("How satisfied are you with your sex life?") on the WHO-QOL-BREF had 25.7% data missing. Independent t-tests showed that there were no significant associations between item 21 and any of the demographic variables. A simple imputation method, using the series mean, was carried out for this item. For other variables, if two or more values were missing from any one item, missing values were replaced by the mean of non-missing values on that measure or subscale.

See Table 2 for means (M), standard deviations (SD) and Cronbach's alpha values for all subscales. In general, internal consistency was within the acceptable range (>.7). However, physical health QOL, social relationships QOL, and maladaptive coping fell below this level. Tests of normality

**Table 3** Pearson correlation (R) and Spearman Rho correlation (rs) values between psychological QOL and continuous and categorical predictor variables (n = 70)

	Continuous Predictors	R values						
		1	2	3	4	5	6	7
1 PSYQOL		—						
2 Age		.120	—					
3 Years in Service		.261*	.799**	—				
4 QPR		.541**	-.082	-.039	—			
5 SS		-.343**	.217	.075	-.538**	—		
6 DASS		-.572**	-.066	-.246*	-.518**	.500**	—	
7 MALCOPE		-.288*	-.264*	-.288*	-.201	.038	.295*	—
8 ADAPCOPE		.417**	-.237	-.071	.596**	-.318**	-.167	.228
Categorical Predictors		Spearman's rho						
		1	2	3	4			
1 PSYQOL		—						
2 Gender		-.020	—					
3 Accommodation		-.139	.329**	—				
4 Diagnosis		-.182	.575**	.400**	—			

indicated that a number of demographic variables (age, gender, accommodation, and education level) and QOL scores were not normally distributed. However, this is to be expected within the target population.

### Analysis Plan

Summary independent samples t-tests were performed to compare mean domain scores on the WHOQOL-BREF with population norms. General population norms were derived from a study from an Australian population (Hawthorne et al., 2006). In terms of population representativeness, the Human Development Index (HDI) scores for Ireland and Australia, a statistical composite index of a country's level of development, showed that both countries fell within the very high human development category (scores of 0.938 and 0.939 respectively) (United Nations Development Programme, 2018).

Bootstrapped Pearson correlation was used to test whether QOL is associated with recovery orientation. Finally, linear multiple regression was performed, with Psychological QOL as the outcome variable. Possible predictor variables were all demographic characteristics, total stigma, recovery orientation, adaptive coping and maladaptive coping. Categorical variables with more than two categories were transformed to two-category variables.

### Is Self-Reported QOL Lower among Service Users with SMI Compared to Population Norms?

Summary independent samples t-tests (equal variance not assumed) were performed comparing transformed domain WHOQOL-BREF scores with domain scores from published population norms (Hawthorne et al., 2006). Participants had lower psychological QOL ( $M=61.7$ ,  $SE=.476$ ) compared to the general population ( $M=70.6$ ,  $SE=2.38$ ). This

mean difference of 8.9, CI [4.15, 13.65] was significant:  $t(74.6)=3.67$ ,  $p<0.01$ , with medium-sized effect, Cohen's  $d=0.63$ . Participants had lower social relationships QOL ( $M=57.94$ ,  $SE=2.37$ ) compared to the general population ( $M=71.5$ ,  $SE=.618$ ). The mean difference, 13.56, CI [8.76, 18.37], was significant,  $t(78.67)=5.53$ ,  $p<0.001$ , representing a medium-sized effect, Cohen's  $d=0.75$ . Participants had lower physical QOL ( $M=69.52$ ,  $SE=1.87$ ) compared to the general population ( $M=73.5$ ,  $SE=.615$ ). The mean difference, 3.98, CI [.116, 7.84], was not significant  $t(84.6)=2.02$ ,  $p>0.05$ . Participants reported lower environmental QOL ( $M=72.81$ ,  $SE=1.84$ ) compared to the general population ( $M=75.1$ ,  $SE=.442$ ). The mean difference, 2.29, CI [-1.41, 5.99], was not significant,  $t(77.2)=1.21$ ,  $p>0.05$ .

### Is Overall Subjective Quality of Life Significantly Associated with Recovery Orientation?

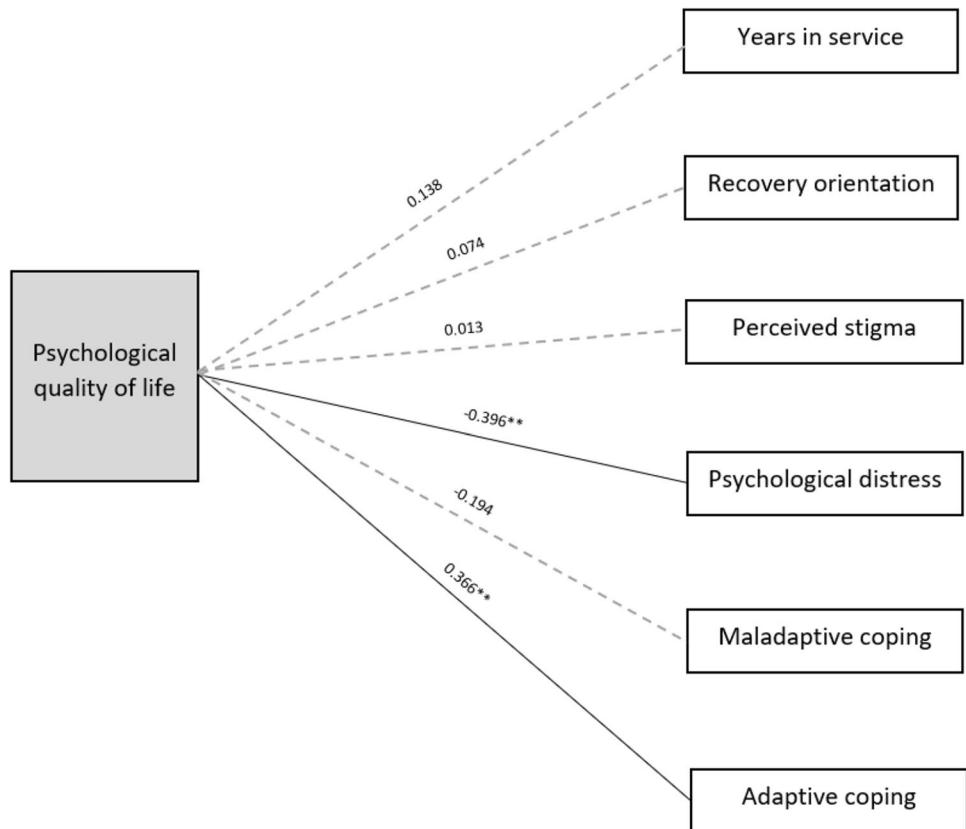
A bootstrapped Pearson correlation between Overall quality of life (WHOQOL-BREF domain) and personal recovery orientation (total QPR score) showed a significant moderate correlation,  $r=.569$  [.336, .761],  $p<.001$ . Bias corrected and accelerated bootstrap 95% confidence intervals (CIs) are reported in square brackets.

### Is Variance in Psychological Quality of Life Predicted by Level of Psychological Distress, Perceived Stigma, Adaptive Coping, Maladaptive Coping and Recovery Orientation?

#### Selection of Model Predictors

Bivariate Pearson correlations (Table 3) were performed between the outcome variable (QOL) and all continuous predictor variables (age, years in service, personal recovery

**Fig. 1** Note: Non-significant relationships are represented by dashed lines; \*\*significant at  $p < 0.01$



orientation, overall perceived stigma, psychological distress, adaptive coping and maladaptive coping). Bivariate Spearman Rho ( $r_s$ ) correlations (Table 3) were performed between QOL and categorical variables of gender (male, female), accommodation (supported, independent/family home), diagnosis (schizophrenia, all other diagnoses). Years in service, personal recovery orientation (QPR), overall perceived stigma (SS), symptoms (DASS), maladaptive coping (MALCOPE) and adaptive coping (ADAPCOPE) were all significantly correlated with psychological quality of life (WHOQOL-BREF) and selected for inclusion in the regression model.

### Regression Model

A multiple linear regression was calculated to predict psychological QOL based on the six selected predictors. No outliers were identified (Std. residual Min = -2.49, Std. residual max = 2.71). There was no evidence of multicollinearity, as determined by observed correlations between predictors, and as measured by VIF values. Data met the assumptions of independent errors (Durbin-Watson value = 2.4), homogeneity of variance and linearity, and the assumption of non-zero variances. A significant regression was found [ $F(6, 59) = 9.57$ ,  $p < .001$ ], with an  $R^2$  of .49, indicating that the model significantly predicted psychological QOL. A graphical representation of the full regression model is detailed in Fig. 1.

Psychological distress and adaptive coping were significant predictors of psychological QOL. Psychological distress (DASS-21) contributed the most to variance in psychological QOL, followed by adaptive coping (See Table 4 for details).

### Discussion

This study compared QOL outcomes of those with SMI to the general population, investigated associations between overall QOL and personal recovery orientation in adults with SMI and investigated whether coping style, perceived stigma, psychological stress and personal recovery orientation contribute significantly to psychological QOL in SMI.

**Table 4** B values, standard error values,  $\beta$  coefficients and p values for predictors in the regression model

	B	SE B	$\beta$	p
<b>Overall Stigma</b>	.0015	.136	.013	.914
<b>Recovery Orientation</b>	.139	.283	.074	.624
<b>Psychological Distress</b>	-.608	.192	-.396	.002**
<b>Adaptive coping</b>	.613	.214	.366	.006**
<b>Maladaptive coping</b>	-.771	.438	-.194	.083
<b>Years in service</b>	.293	.213	.138	.175

\* $p < .05$ , \*\* $p < .01$

Compared to the general population, lower scores were identified among service users in the psychological and social relationships QOL domains, offering partial support to the first hypothesis. This is in line with previous findings that indicate high levels of loneliness and social isolation (Chrostek et al., 2016; National Economic & Social Forum, 2007) and severe psychosocial difficulties (Parabiaghi et al., 2006; Sánchez et al., 2016) in this population.

However, there were no significant differences for environmental QOL or physical QOL. Environmental QOL includes aspects such as “freedom, physical safety and security” “financial resources” and “transport”. A systematic review (Jonikas et al., 2013) found that interventions based on the Wellness Recovery Action Plan (WRAP), which is available to this population in Ireland, improved patient self-advocacy and environmental QOL. Thus, current findings could reflect higher service engagement among participants. Indeed, participants of the current study may have been those service users who had greater access to resources, transport and opportunities for leisure activities, as all those invited to participate had access to and were attending rehabilitation and recovery services.

Service users’ physical QOL was also in line with population norms, contradicting previous findings that adults with SMI have significant difficulties carrying out activities of daily living (Sánchez et al., 2016) and objective evidence of worse physical health problems than the general population due to factors such as smoking, lower levels of exercise, increased cardiovascular disease and obesity (Ashworth et al., 2017). Of note, the social relationships and physical health subscales demonstrated relatively weak internal consistency in the current study, potentially impacting the reliability of these findings. Furthermore, others have found that chronic health conditions tend to be underdiagnosed in this population (Fagiolini & Goracci, 2009). As such, the lack of significance in the current study could reflect absence of appropriate diagnoses, rather than absence of physical health difficulties.

In line with the second hypothesis, higher overall QOL was associated with higher personal recovery orientation, suggesting a relationship between perception of one’s position on their personal recovery journey, and their subjective QOL. This finding corroborates findings from the initial validation study that identified a significant association between QPR scores and QOL (Neil et al., 2009). It is possible that both constructs of subjective QOL and personal recovery relate to intrapersonal reflection on personal experience. Furthermore, the QPR purports to measure a deeply personal, subjective process (Neil et al., 2009) that is strongly associated with personal empowerment. Therefore, this finding provides further support for the association between intrapersonal constructs and QOL.

It was further hypothesised that psychological QOL would be predicted by adaptive/maladaptive coping, level of

psychological distress, recovery orientation and overall perceived stigma in SMI. This hypothesis was partially supported, with the regression model predicting 49% of the variance in psychological QOL. However, only adaptive coping and psychological distress contributed significantly to the model. Of the demographic variables, only number of years attending the service correlated with psychological QOL, however, it did not contribute significantly to the regression model. These findings support evidence that static demographic variables have weaker associations with QOL outcomes among adults with SMI (Vatne & Bjørkly, 2008; Hansson, 2006).

Yanos and Moos’ (2007) model proposes that coping has a strong and direct relationship with well-being outcomes and, more recently, coping has been associated with clinical, personal and functional recovery (Roosenschoon et al., 2019). Current findings support this, as adaptive coping was found to predict psychological QOL. However, maladaptive coping did not significantly predict psychological QOL. It is possible that the association between helpful coping efforts and higher QOL is stronger than that between unhelpful coping efforts and lower QOL. Furthermore, classifying coping as “adaptive” vs. “maladaptive” may not fully capture the nuances of coping efforts employed by participants. Indeed, while the adaptive domain of the Brief COPE evidenced high reliability in this study, there was weak reliability for the maladaptive domain. Roe et al. (2006) have argued that distinctions can be made between “emotion-focused” and “problem-focused” coping, and between “avoidant” and “approach” coping. They describe the complexity and limitations of such classifications, as one strategy could be classified in more than one category. Furthermore, it is argued that the Brief COPE only captures reactive coping, and that other components of coping (e.g. anticipatory and preventive coping) are important contributors to well-being and QOL.

Given evidence of strong associations between stigma and QOL (Gerlinger et al., 2013; Livingston & Boyd, 2010), it was unexpected that stigma did not significantly contribute to QOL in the current study. It is possible that the effects of perceived stigma on QOL are dependent on the coping strategy employed. Higher stigma resistance has been associated with a more adaptive coping style (Kao et al., 2017), and it has been shown that 35% of the variance in self-stigma could be accounted for by the coping strategy adopted (Vauth et al., 2007). Thus, the strength of the relationship between adaptive coping and QOL in the current study may partially account for the findings on stigma. Yanos and Moos’ (2007) model also proposes that coping efforts can alter enduring personal and environmental contexts in meaningful ways. Indeed, a previous study found evidence that perceived stigma does not have a direct influence on QOL (Sibitz et al., 2011). Thus, a person’s adaptive coping may alter the impact of perceived stigma.

## Strengths and Limitations

Total perceived stigma and psychological distress scores were selected as predictor variables in the current study, however, this may have obscured associations between sub-domains and QOL. Psychological QOL was selected as the outcome variable in the regression model because this sub-domain of the WHOQOL-BREF measure maps closely to the concept of well-being. However, there may be associations between other QOL sub-domains, and the predictor variables investigated. Additionally, there may have been a sample selection bias, in that service users self-selected to participate in the study. It is also important to note that, while these findings provide helpful insights, they represent a snapshot in time in the lives of people who have been suffering from SMI for a very long time. The associations between such variables likely vary over time. The cross-sectional design of this study is noted as a major limitation. Future studies may consider employing a longitudinal design to examine changes in associations over time.

Given the unexpected findings in relation to self-stigma and QOL, future studies should explore the specific relationship between perceived stigma, coping style and psychological QOL. Stigma is a broad concept that encompasses many facets. Domains such as “disclosure”, “discrimination” and “positive aspects of mental illness” that form the Stigma Scale measure were employed in the current study. Future research could examine associations between specific aspects of stigma, coping efforts and QOL. Considering the associations between psychological QOL and personal recovery, and also previous associations identified between psychological QOL and well-being (Medvedev & Landhuis, 2018), the clinical implications of these associations need to be considered. This current study was exploratory in nature, and therefore future research may consider more detailed analysis of loadings between individual measures of personal recovery, psychological QOL and well-being. It may also be useful to combine these subjective, psychological variables as part of routine outcome measurement as this may make for potentially useful clinical markers of individuals at risk of poorer outcomes. However, further research is needed to identify which constructs are most clinically relevant, for whom and when.

## Conclusion

This study adds to existing literature by shedding light on the specific associations between QOL, personal recovery and factors such as coping and stigma within an SMI population and adds some empirical support to elements of Yanos and Moos (2007) model. It also provides useful directions for further research in this field. The results of this study provide evidence of the positive contribution of greater adaptive

coping to QOL in adults with severe and enduring mental health difficulties who attend rehabilitation and recovery services. It also provides evidence of the weaker contribution of static sociodemographic factors, that include age, gender, diagnosis, and years attending the service, to QOL outcomes. Furthermore, while personal recovery orientation did not contribute significantly to the variance in psychological QOL, a positive association between personal recovery orientation and subjective overall QOL was identified. A regression model including coping style, psychological distress, recovery orientation and overall perceived stigma predicted 49% of the variance in psychological QOL. However, only adaptive coping and psychological distress contributed significantly to the model. These findings provide additional support for the implementation of interventions that aim to increase a person’s coping resources and factors that are associated with higher personal recovery orientation, such as hope, connectedness with others, positive identity, empowerment and meaning in life (Leamy et al., 2011).

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**Data Availability** In line with ethical approval for this study, the datasets generated and analysed during the current study are available from the corresponding author on reasonable request until August 2024.

## Declarations

**Consent to Participate** Informed consent was obtained from all individual participants included in the study.

**Conflict of Interest** Dr. Orlagh Murphy, Dr. Kathy Looney, Dr. Muireann McNulty and Prof. Gary O'Reilly have no conflict of interest with respect to this publication.

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