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Optimal well-being after psychopathology: Prevalence and correlates

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Abstract

Optimal functioning after psychopathology is understudied. We report the prevalence of optimal well-being (OWB) following recovery after depression, suicidal ideation, generalized anxiety disorder, bipolar disorder, and substance use disorders. Using a national Canadian sample ($N = 23,491$), we operationalized OWB as absence of 12-month psychopathology and scoring above the 25th national percentile on psychological well-being and functioning measures. Compared with 24.1% of participants without a history of psychopathology, 9.8% of participants with a lifetime history of psychopathology met OWB. Adults with a history of substance use disorders (10.2%) and depression (7.1%) were the most likely to report OWB. Persons with anxiety (5.7%), suicidal ideation (5.0%), bipolar 1 (3.3%), and bipolar 2 (3.2%) were less likely to report OWB. Having just one lifetime disorder increased the odds of OWB by 4.2 times relative to multiple lifetime disorders. While psychopathology substantially reduces the probability of OWB, many individuals with psychopathology attain OWB.

Keywords: Epidemiology, Depression, Anxiety, Bipolar, Recovery, Well-being, Resilience

Public Significance / Lay Friendly Summary:

Research on mental illness has historically focused on adverse outcomes, while overlooking a potentially important group of people who thrive following recovery after mental illness. We discovered that a sizable group of people experience long-term thriving in response to common mental illnesses, including depression, anxiety, and substance use disorders.

Optimal well-being after psychopathology: Prevalence and correlates

Clinical psychology and allied mental health fields have been slow to gather data on the full range of long-term outcomes after psychopathology. Considerable epidemiological research focuses on deleterious outcomes, and indicates that mood, anxiety, and substance use disorders are chronic, recurrent conditions that are incompatible with long-term well-being (Moussavi et al., 2007; Bruce et al., 2008; Kessler et al., 2005; Treuer & Tohen, 2010). Studies of deleterious outcomes largely rely on measures of psychiatric symptoms as the primary endpoint (i.e., symptom improvement or recovery). Indices of well-being or functioning are seldom incorporated into primary clinical outcomes (McKnight & Kashdan, 2009). Consequently, little is known regarding the prevalence of rigorously-defined good outcomes after psychopathology, such as the attainment of “optimal well-being” (OWB) (Rottenberg, Devendorf, Kashdan, & Disabato, 2018). OWB is defined as full recovery from psychopathology, coupled with high levels of psychological well-being and low levels of functional disability. Put otherwise, after major psychopathology, such as a diagnosis of depression, anxiety, or bipolar disorder, how likely is it for someone to recover and live a life characterized by high levels of purpose and meaning, autonomy, self-mastery, healthy relationships, and frequent positive emotions?

After reviewing why the neglect of OWB hampers clinical research, we provide the first comparison of OWB after lifetime diagnoses of major depression, bipolar disorders, generalized anxiety disorder, and substance use disorders (i.e., alcohol abuse/dependence, cannabis abuse/dependence, and other drug abuse/dependence).

The Relative Neglect of Well-being and Functioning in Psychopathology Research

To curb the burden of psychopathology, most clinical research has (understandably) relied on psychiatric symptoms to index the course of psychopathology (Wood & Tarrier, 2010), such as the prevalence and correlates of suicide (May & Klonsky, 2016), self-injury (Bentley et

al., 2015), and recurrence of psychopathology (Scholten et al., 2021). Much less research examines other meaningful outcomes like well-being and functioning (Gruber & Moskowitz, 2014; Wood & Tarrier, 2010). Well-being can broadly be conceptualized as “[the] perceived enjoyment and fulfillment with one’s life as a whole” (Goodman, Disabato, & Kashdan, 2020, p. 3), and may include elements such as positive emotions (e.g., happiness), life satisfaction, social relationships, and feeling a sense of purpose in life, among others (see Diener, 1984; Ryff, 1989; Keyes, 2002). Functioning broadly refers to abilities to fulfill roles in a given life domain (e.g., no disability across home, work, school, and social roles), which can be summarized by the phrase, “what people cannot do when they are ill” (Üstün et al., 2010, p. 3).

Extensive work on well-being and functioning (Cooke et al., 2016) has only been slowly assimilated in clinical psychology research. For example, a comprehensive review discovered that 95% of depression treatment trials neither measured nor reported on healthy functioning as outcomes (Kashdan & McKnight, 2009). Studies that consider good outcomes often have notable design limitations, such as non-representative samples (Hendriks et al., 2019), reliance on self-report of psychopathology (Moreau & Wiebels, in press), or insufficient measurement of well-being (e.g., using a one-item measure; Flake & Fried, 2020).

There are, however, several important precedents in the study of good mental health (e.g., Fava & Tomba, 2009; Keyes, 2005) and physical health outcomes (e.g., Veenhoven, 2009). Strong meta-analytic evidence has linked elements of well-being, like positive affect, with desirable outcomes like work, health, and social functioning (Lyubomirsky et al., 2005). Further, one important line of work investigates the concept of flourishing (e.g., Capaldi et al, 2015; Fuller-Thompson et al., 2016), defined as “above-average functioning” on measures of mental health and well-being (Keyes, 2005, p. 543). Building off these precedents, the current study examines the attainment of optimal well-being *after* psychopathology, which is defined by full

symptomatic recovery *and* good functioning across domains, as indicated by a profile of high psychological well-being and low functional impairment.

The Value of Rigorously Defined Good Outcomes

There are several reasons to incorporate measures of well-being and functioning into studies of clinical outcome rather than solely relying on symptom measures (Rottenberg et al., 2018; McKnight & Kashdan, 2009). First, contrary to assumptions that symptoms are sufficient proxies for functioning, levels of psychiatric symptoms correlate only modestly with well-being and functional impairment (Ryff & Keyes, 1995; McKnight & Kashdan, 2009; Mcknight, Monfort, Kashdan, Blalock, & Calton, 2016), and while traditional psychotherapy interventions (e.g., cognitive-behavioral therapy) reduce symptoms, they are less effective at repairing well-being (Widnall et al., 2020). Second, symptom reduction is not the only treatment goal for patients. When queried, a substantial number of patients with depression and anxiety report goals to live more fulfilling lives, have meaningful relationships, and return to work; which are all elements of well-being (Battle et al., 2010; Holtforth, Wyss, Schulte, Trachsel, & Michalak, 2009; Zimmerman et al., 2006). A recent content analysis of 3,003 patients, informal caregivers, and healthcare professionals found that functioning and well-being were highlighted as valued outcomes in depression treatment – as much or more than the abatement of symptoms (Chevance et al., 2020). Third, well-being and functioning measures may provide incremental prediction of prognosis, beyond measures of symptoms (Cloninger, 2006). Preliminary findings indicate that higher levels of well-being may be uniquely protective against future depression and anxiety (Keyes, Dhingra, & Simoes, 2010). Among people diagnosed with depression, higher well-being at baseline was associated with a higher probability of achieving higher well-being and symptomatic recovery at a ten-year follow up (Rottenberg, Devendorf, Panaite, Disabato, Kashdan, 2019; Panaite et al., 2020).

Optimal Well-being (OWB) After Psychopathology

The relative neglect of well-being and functioning assessments in psychopathology research motivated our team to consider long-term well-being *after* psychopathology. Because few studies have considered the prevalence of high functioning after psychopathology, including OWB, we developed rigorous criteria to operationalize OWB (Rottenberg et al., 2018; Tong et al., 2021), informed by prior work on self-determination theory, well-being, and quality of life (Keyes, 2002; Ryan & Deci, 2000; Ryff, 1989). Research from these interrelated literatures suggest that a set of psychological needs must be satisfied for effective functioning and psychological health. Self-determination theory, specifically, outlines three human needs of competence (i.e., environmental mastery), belongingness (i.e., positive relations with others), and autonomy (Ryan & Deci, 2000). These needs represent “psychological nutriments that are essential for ongoing psychological growth, integrity, and well-being” (Deci & Ryan, 2000, p. 229). Once satisfied and supported, these needs provide heightened psychological energy that predicts long-term maintenance of health behaviors (Ng et al., 2012; Ntoumanis et al., 2021), outcomes which are highly desirable for people with psychopathology, who generally show high rates of relapse and recurrence (Bruce et al., 2005; Moussavi et al., 2007).

We defined good outcomes after psychopathology with a population-based norms approach (for details see, Rottenberg et al., 2018). OWB after a mental health diagnosis required four elements: 1) a lifetime history of a mental health diagnosis, 2) absence of a 12-month mental health diagnosis, 3) high well-being, indicated by exceeding population-based norms on psychological-well-being (top quartile on MHC-SF) (Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011), and 4) low functional impairment, indicated by population-based norms on disability measures (bottom quartile on WHODAS, 2.0) (Üstün, Kostanjsek, Chatterji, & Rehm, 2010). Use of this multipart definition increased the odds that individuals identified as

OWB would unequivocally have high functioning across major domains. Although any cutoff for well-being could be deemed arbitrary, one applied precedent for using the top quartile as a cutoff is intelligence testing, where people who score at the 75th quartile are qualitatively classified as “high average” (Sattler & Ryan, 2009).

Is OWB Rare after Psychopathology?

Early data indicate that while major psychopathology reduces the likelihood of OWB, many persons with psychopathology achieve OWB. In a nationally representative United States adult sample, 10% of persons with study-documented depression satisfied OWB criteria 10-years later, compared to 21% of non-depressed persons meeting the same standard (Rottenberg et al., 2019). In other words, depression reduced the probability of achieving OWB by approximately 50 percent. Only 6.1% of adults with panic disorder reached OWB status 10-years later in the same U.S. sample, and no adults with a history of generalized anxiety disorder met OWB criteria (Disabato et al., 2021). These findings point to a need for comparative OWB estimates across a range of mental health conditions to disentangle the unique effects of specific symptom combinations on long-term functioning. For example, there are currently no estimates of OWB after bipolar disorders and substance disorders.

A richer understanding on OWB and how it varies by condition and patient characteristics would help clinicians to communicate reliable, tailored prognostic information to patients (as is customary in other health specialties, such as oncology). Documenting how base rates of OWB after psychopathology vary by demographic factors like age, gender, and socioeconomic status could help clinicians implement evidence-based practice (Pendergast, Youngstrom, Ruan-lu, & Beysolow, 2018; Youngstrom et al., 2017). Similarly, it would be beneficial to know how the number of prior lifetime diagnoses influences long-term OWB, in part because comorbidity and co-occurrence of mental health diagnoses are the norm, rather than

exception, in psychopathology (Hankin et al., 2016; Krueger & Markon, 2006; Caspi et al., 2020). For instance, a four-decade study of the transition to adulthood found 86% of people will experience some form of psychopathology, of which 85% will subsequently accumulate one or more additional mental health diagnoses (Caspi et al., 2020).

Finally, it will be important to investigate how OWB estimates vary across samples and nations, as cultural and national variables are known to influence mental health outcomes (Henrich et al., 2010). In this study, we examine rates of OWB in a nationally representative Canadian sample. Canada presents an interesting contrast to the U.S., in that it exhibits geographic, economic, and cultural similarities to the U.S., while also presenting differences, such as greater potential access to mental and physical healthcare. Canada, for example, implements a universal healthcare delivery system, while the U.S. implements a largely private, non-universal healthcare system. Canada also has a much smaller and less racially diverse population compared to the United States, as 78% of the population does not meet the definition of a “visible minority” (Statistics Canada, 2017). That said, Canadians are more likely to be bilingual compared to Americans, as French and English are the official languages of Canada and are taught in schools, while most schools in the United States teach solely English.

The Current Study

This study extended prior research in two important ways. First, we compared rates of OWB across multiple lifetime mental health diagnoses: major depressive disorder, generalized anxiety disorder, bipolar disorders, and substance use disorders. Major depression, generalized anxiety disorder, and substance use disorders are three of the most prevalent disorders among the general population (Kessler et al., 2005; Vos et al., 2016), and they contribute to substantial health, societal, and economic burdens (Wittchen, 2002; Greenberg et al., 2015). Bipolar disorders, while less prevalent, often result in marked functional impairment and reduced quality

of life (Martinez-Aran et al., 2007). For researchers, patients, and clinicians, knowing the proportions of patients who achieve OWB after specific diagnoses would provide valuable prognosis information. Second, we determined the demographic and clinical characteristics that may help or hinder OWB after a lifetime mental health diagnosis.

Although this is a new area of investigation, we expected that rates of OWB after depression and generalized anxiety disorder in Canada would be similar to those observed in the U.S. (Rottenberg et al., 2019; Disabato et al., 2021). Given this was the first study to ascertain OWB rates after bipolar and substance use disorders, we did not have expectations for these disorders. Relatedly, due to the lack of existing data on OWB after psychopathology, and the exploratory nature of this study, we did not have specific hypotheses about demographic and clinical correlates. Our OWB study criteria was preregistered and full information about the pre-registration, including information about deviations can be found at <https://osf.io/vpqyx/> and in supplementary material.

Method

This study conducted secondary analyses of the public use dataset 2012 Canadian Community Health Survey-Mental Health (CCHS-MH) (see for more information; Gilmour, 2014; Statistics Canada, 2020), which includes a national sample ($N = 25,113$) of Canadians aged 15 to 80+. The survey targeted Canadian household residents living in any of the 10 provinces, except for people living on reserves and other Aboriginal settlements, full-time members of the Canadian Armed Forces, and residents of institutions. These exclusions amount to about 3% of the national population. Data were collected using computer-assisted interviewing. The overall response rate was 68.9%. Verbal informed consent was received from each participant.

OWB Variables

Mental Health Diagnoses. Diagnoses were derived from the World Health Organization version of the Composite International Diagnostic interview 3.0 (WHO-CIDI), a structured diagnostic interview that follows the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) and the International Classification of Disease (ICD-10). Assessments were conducted for lifetime and 12-month presence of major depressive episode, generalized anxiety disorder, bipolar disorder 1, bipolar disorder 2, substance abuse with alcohol or drugs, and suicidal ideation. Substance use disorders included alcohol abuse/dependence, cannabis abuse/dependence, and “other” drug abuse/dependence.

Psychological Well-being. Psychological well-being was assessed with the Mental Health Continuum – Short Form (MHC-SF) (Lamers et al., 2011), a 14-item instrument measuring dimensions of positive mental health, including emotional, social, and psychological well-being. Psychometric properties of the MHC-SF are well established (Lamers et al., 2011). The composite MHC-SF score was used. In the overall sample, internal consistency for the MHC-SF composite score was good (Cronbach’s $\alpha = 0.88$).

Disability. The 12-item WHO Disability Assessment Schedule 2.0 assessed functioning and disability status (Üstün et al., 2010). Scoring was based on the “complex scoring” method recommended in the WHODAS 2.0 manual (Üstün et al., 2010). The overall score ranges from 0 to 100, where 0 means no disability, and 100 means full disability (Statistics Canada, 2013). In the public use dataset, the maximum for this variable was 40.

Optimal Well-being (OWB) and Mental Health Outcomes. A binary OWB variable (1 = OWB; 0 = No OWB) was created, requiring three elements: 1) the absence of mental health conditions in the past 12-months (i.e., depressive disorder, anxiety disorders, bipolar disorders, alcohol or drug abuse, suicidal ideation or attempts); 2) the presence of psychological well-being, defined as exceeding the top quartile of age-gender matched norms from the overall

sample, as assessed by the MHC-SF; and 3) low disability, defined as scoring in the lower quartile of age-gender matched norms from the overall sample, as assessed from the WHODAS 2.0 (Bruce et al., 2008). While OWB was measured dichotomously to aid with the interpretability of our findings, we recognize that well-being, functioning, and mental health symptoms exist on a continuum. Supplement Tables 1 through 6 provide age-gender matched norms on the MHC-SF and WHODAS 2.0.

To document how rates of OWB compare with symptomatic criteria of mental health outcomes, we created a variable to measure “diagnostic recovery.” This variable identified participants who 1) endorsed the presence of a given lifetime diagnosis and 2) no longer met criteria for said 12-month diagnosis. Altogether, three possible outcomes existed for people who endorsed a lifetime history of a mental health diagnosis: 12-month diagnosis, diagnostic recovery, and OWB.

Demographic Variables

Age (grouped by decade, except for ages 15-19), household income, gender, education (post-secondary degree; no post-secondary degree), marital status, and race (white; nonwhite) variables were obtained from the public use dataset.

Clinical Variables

Number of Lifetime Mental Health Conditions. A continuous variable summed participants’ lifetime mental health diagnoses.

Persistence of Mental Health Conditions. The duration of participants’ longest illness episode was computed among those diagnosed with depression or generalized anxiety disorder. These variables were collapsed and categorized to help with interpretability (“less than 1 year,” “1-2 years,” “2-5 years,” “5+ years”).

Perceived General Health. Participants reported their perceived overall health status on a 5-point scale: poor, fair, good, very good, excellent.

Satisfaction with Life. Participants reported their perceived life satisfaction on an 11-point scale.

Distress. Ten items on a 5-point scale assessed participants' 30-day psychological distress levels using the K-10 (Kessler et al., 2002). Total scores range from 0-40, with higher scores indicating higher distress. In the overall sample, internal consistency for the K-10 composite score was good (Cronbach's $\alpha = 0.86$).

Perceived Mental Health Need. Participants were grouped into one of four categories based on whether a participant reported a perceived need for mental health care (information, medication, counseling, other) in the past 12-months, and if so, whether their needs were met, partially met, or unmet.

Sample Weights and Missing Data

Statistics Canada calculated sampling weights to ensure valid inference to the target (household) population. The sampling weights account for design characteristics such as unequal selection probabilities, exclusion of out of scope units, nonresponse at the household and personal level, and extreme values. A set of 500 replicate bootstrap weights allow accurate confidence intervals to be calculated by accounting for clustering in the multi-stage sampling procedure. These weights were applied to all analyses to obtain results representative of the Canadian population.

Missing data for mental health diagnoses and WHODAS 2.0 ranged from 0 to 3%, while missing data for the MHC-SF was 9%. Bivariate correlations indicated that missingness for the MHC-SF was associated with the following variables: age ($r = 0.15$), female gender ($r = 0.04$), and disability ($r = 0.02$), education ($r = -0.06$), non-white race ($r = -0.02$), and number of mental

health diagnoses ($r = -0.05$), $ps < 0.001$. Given the large remaining sample ($N = 23,491$), analyses implemented listwise deletion.

Analysis Plan

Analyses were conducted using SPSS 26 (IBM Corp., Armonk, N.Y., USA). After ascertaining the prevalence of OWB and other mental health outcomes, we reported descriptive statistics on characteristics of diagnostic subsamples. We calculated 95% confidence intervals for the difference score in proportions to examine whether subsample groups exhibited reliable differences in OWB estimates (Cumming & Finch, 2005; Franklin, 2007). Consistent with prior research (Disabato et al., 2021), we also conducted sensitivity analyses that explored how variations in OWB criteria and cut-off scores influenced rates. These analyses revealed that our *a priori* OWB criteria (e.g., quartile cut-offs) resulted in stark differences in the groups selected when compared with looser criteria (e.g., tertial cut-offs; Keyes, 2002; Fuller-Thompson, 2016), suggesting that OWB criteria select a different group. We present these sensitivity analyses in Supplement Table 7.

In the total sample, we computed adjusted odds ratios (AOR) to determine whether each lifetime disorder, and the total number of disorders, influences the likelihood of OWB. A series of logistic regressions examined demographic characteristics (i.e., gender, age, race, income, education) of OWB among each diagnostic subsample. Since interaction analyses in the diagnostic subsample were underpowered, we used the full sample. It should be noted that all analyses with demographic variables were exploratory. For depression and anxiety subsamples, a logistic regression also explored how longest illness duration influenced OWB.

Finally, we described clinical characteristics of people with OWB. Chi square tests of independence tested how people with OWB compared to people without OWB on the following variables: perceived health, perceived life satisfaction, and perceived mental health needs. An

ANOVA compared 30-day psychological distress (i.e., K-10) among people with and without OWB.

A threshold p-value of 0.05 (two-tailed tests) was used to identify significant relationships. Bonferroni corrections for multiple tests were applied to each subset of logistic regression analyses to reduce Type 1 error; however, the pattern of significant findings remained unchanged after this statistical correction. To reduce Type 1 error and provide interpretation of meaningful effects, we used to Chen et al.'s (2010) recommendations to guide effect size interpretations of odds ratios (ORs) in epidemiological datasets. Specifically, Chen et al. (2010) found that when the base rate is 5%, ORs of 1.52, 2.74, and 4.72 can be interpreted as small, medium, and large effect sizes, respectively, which are comparable to Cohen's D interpretations. For inverse relationships, ORs of 0.66, 0.36, and 0.21 represent small, medium, and large effect sizes, respectively. To help contextualize findings, an OR of 1.52 means there is roughly a 50% increase in the odds of OWB with exposure to a predictor variable (Norton et al., 2018).

Results

The Prevalence of OWB after Lifetime Mental Health Conditions

Rates of lifetime mental health conditions were as follows: depression (11.3%), generalized anxiety disorder (8.7%), bipolar I disorder (0.9%), bipolar 2 disorder (0.6%), substance use disorder (8.7%), suicidal ideation (8.2%), and "any disorder" (33.1%) (see Table 7 in the Supplementary Material for SEs). Table 8 in the Supplementary Material provides demographic information for these conditions.

Table 1 provides prevalence estimates of OWB and comparisons across mental health conditions. The outcome of OWB was starkly less common than outcomes based solely on diagnostic recovery, in which rates ranged from 27.7% (bipolar disorder 2) to 77.4% ("other"

drug abuse or dependence). Among never diagnosed participants, 24.1% met criteria for OWB compared with 9.8% of participants with any lifetime disorder. Segmented by lifetime disorder, substance use disorder (10.2%) and depression (7.1%) yielded the highest OWB rates, followed by generalized anxiety (5.7%), suicidal ideation (5.0%), bipolar I (3.3%), and bipolar II (3.2%). Among substance use disorders, rates of OWB were lower after cannabis abuse/dependence and other drug abuse (4.3%) than after alcohol abuse/dependence (10.9%). All differences in OWB proportions between disorders were statistically significant ($p < 0.05$), except between bipolar I (3.3%), and bipolar II (3.2%) (diff = 0.13, 95% CI: 0.02, 0.20, $p > 0.05$). Table 9 in the Supplementary Material provides 95% confidence intervals for the difference scores in OWB.

Logistic regression revealed that a history of each lifetime mental health condition was associated with lower observed OWB, after controlling for the presence of other conditions (see Supplement Table 10). OWB was more common among those who did not report a history of bipolar 1 history (AOR = 7.47, 95% CI: 7.15, 7.81), suicidal ideation (AOR = 3.74, 95% CI: 3.72, 3.76), or bipolar 2 (AOR = 3.01, 95% CI: 2.86, 3.16). Likewise, OWB was more common among those who did not report a history of generalized anxiety disorder (AOR = 2.18, 95% CI: 2.16, 2.19), depression (AOR = 1.62, 95% CI: 1.61, 1.64), or “any mental disorder” (AOR = 1.58, 95% CI: 1.57, 1.59). Put otherwise, the odds of someone *without* a history of a “any mental disorder” reaching OWB is 0.18:1, while the odds of someone *with* a history of a “any mental disorder” reaching OWB is 0.11:1.

The absence of a substance use disorder also predicted OWB, but the effect size did not meet the threshold for clinical significance (AOR = 1.34, 95% CI: 1.33, 1.35). However, when segmenting substance use disorders in the model, the absence of a history of cannabis use abuse/dependence (AOR = 1.89; 95% CI: 1.88, 1.90) and “other” drug abuse/dependence (AOR = 1.95; 95% CI: 1.92, 1.98) significantly predicted OWB with small effect sizes, while the

absence of alcohol abuse/dependence (AOR = 1.05, 95% CI: 1.04, 1.06) did not meet the threshold for clinical significance.

Demographic Characteristics and Correlates of OWB

Table 2 provides descriptive variables, subsampled by disorder, for individuals who met OWB. In the full sample including non-disordered participants, a logistic regression indicated that white race (AOR = 0.76, 95% CI: 0.76, 0.76) and not having a post-secondary education (AOR = 0.94, 95% CI: 0.94, 0.94) were associated with lower observed rates of OWB, and male gender (AOR = 1.18; 95% CI, 1.18, 1.18) significantly predicted higher rates of OWB; however, these variables did not meet the threshold for clinical significance. The strongest demographic predictor of higher observed OWB was household income. Compared to those earning \$0 to \$20,000, each move upward in income bracket was associated with a small to medium increase in rates of OWB: bracket \$20,000 - \$39,999 (AOR = 2.23, 95% CI: 2.20, 2.26), bracket \$40,000 - \$59,999 (AOR = 2.18, 95% CI: 2.15, 2.21), bracket \$60,000 - \$79,999 (95% CI: 2.81, 2.84), and bracket \$80,000 or more (AOR = 2.23, 95% CI: 2.22, 2.24).

In the full sample, we also explored interactions among each socio-demographic variable in predicting OWB. We entered each socio-demographic variable and five interaction terms into a logistic regression model (i.e., sex x race, sex x education, sex x income, race x education, and race x income). The coefficients for the interaction terms yielded an interaction odds ratio (IOR). To interpret the IORs (Chen, 2003), we recalculated the IOR by multiplying the linear term OR for the first variable with the IOR term of the first and the second variable. Analyses revealed small but significant interaction of race and education. Examination of the IORs revealed that white participants *without* post-secondary education had a greater chance of achieving OWB, compared to people who were non-white *and* had a post-secondary education.

Results also yielded a small race x income interaction; whereas higher income, as a main effect, was associated with a greater probability of OWB, inspection of the IORs indicated that higher income was associated with OWB for people who are non-white; meanwhile, white race was associated with a reduced likelihood of achieving OWB at lower income brackets. Specifically, while the odds of OWB decreased for white individuals (compared to non-white individuals), any benefits of one race over tended to decrease in magnitude at increasingly higher income brackets (i.e., \$20,000 - \$39,999; \$40,000 - \$59,999; \$60,000 - \$79,999). However, the effects of this interaction did not meet the threshold of clinical significance at the highest income bracket of \$80,000 or more. See supplement Table 12 for details.

Relationship trends between demographic variables and OWB were generally consistent when segmenting analyses across disorders (Table 3): most demographic variables were statistically but not clinically significant. However, white race was negatively associated with OWB among people with a history of suicidal ideation (AOR = 0.50, 95% CI: 0.49, 0.50), and lower education was negatively associated with lower rates of observed OWB among people with a history of depression (AOR = 0.65, 95% CI: 0.65, 0.66). Within depression, the odds of OWB also increased significantly across income brackets: \$20,000 - \$39,999 (AOR = 2.03, 95% CI: 1.96, 2.10), \$40,000 - \$59,999 (AOR = 3.35, 95% CI: 3.24, 3.45), \$60,000 - \$79,999 (AOR = 4.02, 95% CI: 3.89, 4.16), and \$80,000 or more (AOR = 4.74, 95% CI: 4.58, 4.88); similar effects held for patients with histories of substance use disorder. Cell sizes among the bipolar subsamples were too low for meaningful interpretation and are simply presented for completeness.

Clinical Characteristics and Correlates of OWB

Logistic regression indicated that more lifetime mental health conditions were associated with lower observed rates of OWB, with a small to medium effect size (AOR = 0.44, 95% CI:

0.44, 0.44). This relationship held when including demographic covariates. Specifically, those without lifetime mental health conditions had 6 times the odds of OWB (AOR = 6.04, 95% CI: 6.00, 6.08) compared to those with multiple lifetime conditions. Those with just 1 lifetime mental health condition had 4.20 times the odds of OWB (AOR = 4.20, 95% CI: 4.16, 4.24) compared to those with multiple lifetime conditions; the presence of multiple lifetime mental health conditions had a large inhibiting effect on OWB.

Table 4 provides clinical characteristics, subsampled by condition, for individuals who met OWB. Having multiple lifetime conditions was common across mental health subsamples, indicating that multiple lifetime mental health conditions does not completely preclude the chance for OWB. Specifically, 43% of individuals with a depression history and OWB experienced at least 2 lifetime diagnoses, similar to 51% of individuals with a generalized anxiety disorder history and OWB, 80% of individuals with a bipolar I history and OWB, and 100% of individuals with bipolar II and OWB.

Subsampled by depression and anxiety, shorter durations of severe illness episodes predicted OWB controlling for number of lifetime mental diagnoses. Among those with a depression history, the odds of OWB increased significantly with shorter depressive episode durations: “less than 1 year” (AOR = 2.77, 95% CI: 2.71, 2.83), “1-2 years” (AOR = 2.52, 95% CI: 2.46, 2.58), and “2-5 years” (AOR = 1.34, 95% CI: 1.31, 1.38).

Among those with a history of generalized anxiety disorder, there were higher odds of OWB (AOR = 1.78, 95% CI: 1.75, 1.81 and AOR = 1.57, 95% CI: 1.54, 1.59) for those reporting shorter illness durations of “less than 1 year” and “1-2 years,” respectively, relative to those who reported durations of over 5 years, $ps < 0.001$. Surprisingly, individuals with anxiety episode durations of “2-5 years” were less likely (AOR = 0.64, 95% CI: 0.63, 0.66) to obtain OWB compared to those with durations “5 years or more,” $p < 0.001$.

A positive relationship existed between OWB and perceived health ($X^2(4, N = 23,485) = 1,645,282, p < 0.001$) and life satisfaction ($X^2(4, N = 23,374) = 1,756,028, p < 0.001$). For OWB individuals, 80% reported their overall health as “very good” or “excellent” whereas for individuals without OWB, just 56% reported their overall health as “very good” or “excellent”. Further, individuals with OWB (95%) more commonly reported having “no needs” for mental health care compared to individuals without OWB (79%), $X^2(3, N = 23,374) = 697,321, p < 0.001$. Finally, an ANOVA revealed that OWB individuals ($M = 2.14; SD = 2.47$) reported significantly lower distress over the previous 30 days compared to those without OWB ($M = 6.16; SD = 5.71$), with large effects, $F(1, 26,342,457) = 2,332,063, p < 0.001, \eta^2 = 0.27$. Overall, individuals with OWB reported overall better health, higher life satisfaction, less needs for mental health care, and less psychological distress compared to individuals without OWB.

Discussion

Incorporating data on long-term positive outcomes after psychopathology will be useful to clinicians, researchers, and patients alike (Chevance et al., 2020). Recent research discovered a substantial percentage of adults diagnosed with depression will subsequently attain high levels of psychological well-being (Rottenberg et al., 2018; Rottenberg et al., 2019; Disabato et al., 2021). The current study extended this work by investigating the prevalence and predictors of OWB after multiple mental health conditions in a large, nationally representative sample of Canada. Data on the clinical and socioeconomic features associated with OWB are needed to enable clinicians to provide more precise prognostic information to patients.

In this dataset, a history of a mental health condition significantly decreased the likelihood of attaining OWB, reducing the probability by 2.5 to 7 times. However, a substantial group of individuals previously diagnosed with a mental health condition (10% across disorders) attained OWB at the time of the study. Given that strict criteria were used to define OWB, these

findings indicate that high functioning (as indicated by high levels of well-being and low disability) is among the outcomes of mental health conditions observed in Canada. We also found that OWB as an outcome is associated with lower levels of distress, more positive reports of health status, and lower levels of need for care, with 95% of individuals with OWB status reporting “no need” for mental health care compared to 79% of people without OWB status. Put otherwise, people with a history of psychopathology who reach OWB status may require less mental health services over time, and thus OWB may reduce the human and societal cost of psychopathology in the long-term.

About 10% of people with a substance use history and 7.1% of people with a depression history met OWB criteria. These rates were notably higher than OWB observed after generalized anxiety disorder (5.7%), suicidal ideation (5.0%), bipolar 2 (3.3%), and bipolar 1 (3.2%). Within substance use disorders, a history of alcohol abuse/dependence (18.1%) had smaller effects on OWB status than cannabis abuse/dependence (6.8%) and “other” drug abuse/dependence (4.0%). Levels of observed OWB after depression broadly converged with a previous estimate in a U.S. population sample (9.7%), even with somewhat different ascertainment methods for depression and well-being (Rottenberg et al., 2019; Disabato et al., 2021). Similarly, the current study observed that OWB rates after generalized anxiety disorder was less common than OWB after depression. However, OWB after generalized anxiety disorder (5.7%) in this Canadian sample was more common than a representative U.S. sample (Disabato et al., 2021).

Future studies might examine why generalized anxiety disorder is associated with lower observed OWB. One possibility is that the disorder criteria themselves may contribute to these differences. Generalized anxiety disorder requires excessive worry or anxiety that lasts at least 6 months, while a depression diagnosis only requires symptoms for 2 weeks or more (American Psychiatric Association, 2013). However, this rationale is challenged by the comparatively high

OWB rates after substance use disorders, in which sustained remission criteria require 12 months of no symptoms (APA, 2013). Conceptual models may elucidate why generalized anxiety disorder impacts long-term well-being, as they highlight the role of uncertainty intolerance, a poor understanding of emotions, difficulties effectively managing and harnessing emotions to make progress toward meaningful goals, and a cycle where avoidance of uncontrollable worries restricts potentially rewarding activities (Behar et al., 2009).

Our results support the broad distinction between unipolar mood disorders and bipolar mood disorders (Judd et al., 2008). Many studies find no obvious differences in course between persons with unipolar and bipolar mood disorders (Scott et al., 2013; Cuellar, Johnson, & Winters, 2005). At the same time, the majority of studies follow hospitalized patients who may be unrepresentative of the entire population (Angst, 2008; Rottenberg et al., 2018). For people with bipolar disorders, research has found that changes in depression severity are associated with functional impairment, while mania or hypomania symptoms are inconsistently associated with functioning (Simon et al., 2007; Hacimusalar & Doğan, 2019). There are also indications that bipolar I produces greater functional impairment relative to other mood disorders (Judd et al., 2008). In our study, the low observed OWB rates after bipolar disorders suggest that the presence of manic or hypomanic episodes detracts from long-term well-being. OWB was 7.5 times more common among people who had no history of bipolar I disorder, whereas an absence of depression history increased odds of OWB by 1.6 times. While these findings suggest that the presence of bipolar I has a particularly deleterious effect on long-term OWB, we did not have data to examine the role of particular clinical features, such as age of onset, illness severity, and number of manic episodes.

Having a greater number of lifetime mental health conditions inhibited OWB. Compared to people with multiple lifetime conditions, a single lifetime condition increased the odds of

OWB by 4.2 times and having no lifetime conditions increased the odds of OWB by 6 times. Since 86% of people will experience some form of psychopathology by age 45, and most will experience a subsequent disorder (Caspi et al., 2020), this underscores the importance of interventions that address risk factors linked to comorbidity and recurrence, such as targeting sub-clinical symptoms (Treur & Tohen, 2010; Judd et al., 2008), and components of well-being (Cloninger, 2006).

Longer episodes of clinically diagnosed depression and anxiety were negatively associated with OWB. Depressive or anxiety episodes of “more than 2 years” generally decreased the odds of OWB compared to episodes “less than 2 years.” These findings highlight the importance of earlier interventions to help facilitate long-term well-being among people with mental health diagnoses.

Our study suggests demographic correlates of OWB vary within specific disorders. Overall, the strongest demographic predictor was household income, where the odds of OWB increased across income bracket; these relationships were stronger within the depression and substance use disorder subsamples. That a resource variable like greater income was associated with higher OWB provides clues for understanding mechanisms that may facilitate OWB; this finding converges with literature highlighting the pernicious effects of poverty on depression and anxiety (Ridley et al., 2020). Moving forward, research needs to uncover malleable mechanisms that influence well-being during and after psychopathology, especially those facilitated by pharmacologic and psychotherapy interventions.

There are a few interpretative caveats worth considering. First, our secondary analyses of a nationally representative archival dataset relied on retrospective, lifetime and 12-month diagnoses. Less severe disorders may not be recalled during retrospective assessments (Moffitt et al., 2010; Streiner, Patten, Anthony, & Cairney, 2009), which may underestimate observed OWB

rates after lifetime disorders. Lifetime diagnosis of psychopathology could be undercounted with an overrepresentation of severe and personally significant mental health episodes (Takayanagi et al., 2014). The cross-sectional design precluded analyses of predictors and changes in well-being and psychopathology over time. In these data, a greater number of lifetime diagnoses resulted in less favorable chances for OWB. Future research should clarify the extent that co-morbid psychopathology impairs chances for OWB. Another caveat regards our approach for dealing with interpreting statistically significant findings in this epidemiological dataset. To reduce Type 1 errors and identify effects with more practical application, we applied Bonferroni corrections and prioritized interpreting effect sizes of odds ratios (Chen et al., 2010). Other approaches, like equivalence testing (Da Silva et al., 2009), exist to help researchers identify the smallest effect size of interest. Future studies should also investigate OWB rates in non-WEIRD (Western, Educated, Industrialized, Rich, and Democratic) samples, especially since theories of well-being may have limited generalizability to these groups (Henrich et al., 2010).

This study also had notable strengths. The CHSS-MH provided a large representative sample of approximately 25,000 Canadians with gold-standard assessments of mental health diagnoses, well-being, and disability. The richness of this sample allowed us to obtain estimates of less common diagnoses like bipolar disorders. We also conceptualized OWB using a theoretically and methodologically rigorous approach, that used age-gender matched, population norms to define OWB. We acknowledge that a focus on a discrete OWB state is just one approach to measuring optimal functioning, and that there is also value in analyzing well-being on a continuum. However, given our interest in optimal functioning after mental health diagnoses (Ryan & Deci, 2000), use of strict cut-offs (i.e., top quartile) enhance the clinical utility of our OWB criteria, and the dichotomous classification approach provides proportional estimates of high functioning after psychopathology – information, which, can be easily

interpreted by patients and clinicians. We invite future researchers to compare different operationalizations of OWB (as we have, see for example, Disabato et al., 2021). Lastly, and most notably, this study is the broadest assessment of OWB after psychopathology yet. Whereas most studies investigate specific mental health conditions alone, this study provided a comprehensive comparison of OWB across mood disorders, generalized anxiety disorder, and substance use disorders.

Overall, this representative study provides evidence that OWB is a realistic goal for some patients, particularly in the aftermath of alcohol use disorders or depression. These findings, if replicated, challenge public stereotypes that these conditions are overwhelmingly chronic, intractable, and preclude long-term well-being (Devendorf, Bender, & Rottenberg, 2020; Stacy & Rosenheck, 2019). Based on these data, symptomatic recovery may be a more realistic goal for patients with a history of suicidal ideation or bipolar disorders. Ultimately, we hope this work inspires investigations into understanding why OWB rates differ across disorders, including eating disorders, schizophrenia spectrum disorders, trauma-related disorders, and other anxiety-related disorders (e.g., obsessive compulsive disorder, social anxiety). Studying OWB from a transdiagnostic lens might offer clues about human resilience and recovery across specific symptom presentations and adverse circumstances (Bonanno, 2004). Additionally, explorations of longer time trajectories and intensive measurements may help to capture transitions from psychopathology to normal to exceptional functioning; trajectories that to date, have been neglected by allied health professions.

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Table 1.
Rates for Optimal Well-being (OWB) and Prognostic Course After Lifetime Mental Health Diagnoses in Canada

Lifetime Diagnosis	Full Sample (<i>N</i> = 23,491)	12-month Clinical Course for Subsamples of Specific Disorders		
	Lifetime Prevalence	12-month Diagnosis	Diagnostic Recovery	OWB
	% (<i>SE</i>)	% (<i>SE</i>)	% (<i>SE</i>)	% (<i>SE</i>)
Total Sample	-	-	-	18.6 (.01)
No Lifetime Any Disorder	66.9 (.01)	-	-	23.9 (.01)
Lifetime Substance Use Disorders	8.7 (.01)	21.3 (.02)	68.4 (.02)	10.2 (.01)
Alcohol Abuse or Dependence	18.1 (.01)	18.2 (.02)	71.0 (.02)	10.9 (.01)
Cannabis Abuse or Dependence	6.8 (.01)	20.1 (.03)	73.7 (.03)	6.3 (.02)
Drug Abuse or Dependence (excluding Cannabis)	4.0 (.01)	18.3 (.04)	77.4 (.04)	4.3 (.02)
Lifetime Any Disorder	33.1 (.01)	32.1 (.02)	58.4 (.02)	9.4 (.01)
Lifetime MDD	11.3 (.01)	43.3 (.03)	49.7 (.03)	7.1 (.01)
Lifetime GAD	8.7 (.01)	30.4 (.03)	63.8 (.03)	5.7 (.01)
Lifetime Suicidal Ideation	8.2 (.01)	23.0 (.03)	72.7 (.03)	5.0 (.01)
Lifetime Bipolar II	.6 (<.01)	68.9 (.12)	27.7 (.11)	3.3 (.05)
Lifetime Bipolar I	.9 (<.01)	61.9 (.10)	34.9 (.10)	3.2 (.04)

Note: Estimates are based on weighted, age-gender matched norms. The *N* provided is based on the non-weighted sample to help with interpretation. Diagnostic recovery is defined as no longer meeting 12-month criteria for a specific diagnosis. All disorders significantly differed in their rates of OWB, except OWB was not significantly more common after BP2 than BP1, (diff = .13, 95% CI: .02, .20, *p* > .05).

MDD = Major Depressive Disorder; GAD = Generalized anxiety disorder.

Table 2.
Descriptive Statistics of Individuals with Optimal Well-being (OWB) after Lifetime Mental Health Diagnoses

OWB after Lifetime Disorder	No Lifetime Disorder (N=733) % (SE)	MDD (n=180) % (SE)	GAD (n=128) % (SE)	BP1 (n=8) % (SE)	BP2 (n=3) % (SE)	SUD (n=533) % (SE)	SUI (n=109) % (SE)
Sex							
Male	49.9 (.02)	30.9 (.10)	40 (.13)	59.7 (.55)	70.7 (.63)	80.6 (.05)	39.0 (.15)
Female	50.1 (.02)	69.1 (.10)	60 (.13)	40.3 (.55)	29.3 (.63)	19.4 (.05)	61.0 (.15)
Race							
White	68.1 (.02)	87.1 (.07)	90.4 (.08)	91.5 (.32)	100	85.7 (.05)	68.1 (.14)
Nonwhite	31.9 (.02)	12.9 (.07)	9.6 (.08)	8.5 (.32)	0	14.3 (.05)	31.9 (.14)
Language used at-home							
English	71.0 (.02)	73.4 (.10)	68.4 (.13)	93.0 (.29)	100	77.7 (.05)	71.4 (.02)
French	15.7 (.02)	24.7 (.09)	31.1 (.13)	7.0 (.29)	0	16.5 (.05)	16.5 (.02)
English and French	3.1 (.01)	1.42 (.03)	.45 (.02)	0	0	2.1 (.02)	3.0 (.01)
Neither English or French	10.1 (.01)	1.5 (.03)	0	0	0	3.8 (.02)	9.1 (.01)
Education							
No Post-secondary degree	31.6 (.02)	19.4 (.08)	24.1 (.12)	16 (.41)	29.8 (.63)	31.2 (.06)	28.4 (.14)
Yes Post-secondary degree	68.4 (.02)	80.6 (.08)	75.9 (.12)	84 (.41)	70.2 (.63)	68.8 (.06)	71.6 (.14)
Age							
15-19 years	8.8 (.01)	1.6 (.03)	0	0	29.8 (.63)	2.5 (.02)	5.8 (.07)
20-29 years	17.8 (.02)	9.9 (.06)	18.6 (.11)	21.2 (.46)	40.9 (.63)	14.9 (.05)	14.4 (.11)
30-39 years	17.5 (.02)	12.2 (.07)	14.0 (.09)	14.5 (.40)	0	22.2 (.05)	15.7 (.11)
40-49 years	19.0 (.02)	34.5 (.10)	18.1 (.10)	15.5 (.41)	29.3 (.63)	23.7 (.06)	21.1 (.12)
50-59 years	16.7 (.02)	26.9 (.10)	33.9 (.13)	48.8 (.56)	0	21.3 (.05)	22.6 (.13)
60-69 years	11.8 (.02)	12.8 (.07)	13.4 (.09)	0	0	13.4 (.04)	16.3 (.11)
70-79 years	6.3 (.01)	2.1 (.03)	2.0 (.04)	0	0	1.8 (.02)	4.2 (.06)
80+ years	2.1 (.01)	0	0	0	0	.3 (.01)	0
Marital Status							
Single	25.2 (.02)	16.2 (.08)	17.0 (.10)	16.0 (.41)	70.3 (.63)	18.0 (.05)	23.4 (.13)
Married	56.4 (.02)	60.3 (.10)	46.4 (.11)	0	29.3 (.63)	58.7 (.06)	47.4 (.15)
Common Law	8.6 (.01)	9.5 (.06)	21.3 (.05)	54.8 (.56)	0	16.5 (.05)	7.2 (.08)
Widowed	2.9 (.01)	5.9 (.05)	4.1 (.05)	0	0	1.1 (.01)	1.6 (.04)
Divorced/separated	6.8 (.01)	8.1 (.06)	11.2 (.09)	29.2 (.51)	0	5.7 (.05)	20.5 (.12)
Household Income							
No Income to < \$20,000	2.5 (.01)	1.8 (.03)	4.1 (.05)	0	0	1.7 (.02)	3.4 (.06)
\$20,000 - \$39,999	8.8 (.01)	6.7 (.05)	5.9 (.06)	14.5 (.40)	0	7.2 (.03)	21.3 (.12)
\$40,000 - \$59,999	16.2 (.02)	16.5 (.08)	13.4 (.09)	24.7 (.50)	40.9 (.68)	10.6 (.04)	10.9 (.09)
\$60,000 - \$79,999	20.6 (.02)	21.1 (.09)	13.9 (.09)	37.1 (.55)	29.3 (.63)	11.5 (.04)	18.3 (.12)
\$80,000 - More	51.9 (.02)	53.7 (.11)	62.7 (.13)	23.6 (.48)	29.4 (.63)	69.0 (.06)	46.1 (.15)

Note: Ns provided are based on unweighted sample to help with interpretation.

MDD = Major Depressive Disorder; GAD = Generalized Anxiety Disorder; BP = Bipolar Disorder; SUD = Substance Use Disorder; SUI = Suicidal Ideation

Table 3.
Logistic Regression of Demographics Predicting Optimal Well-being (OWB) after Lifetime Mental Health Diagnoses

	No Lifetime Disorder (N=14,495)	MDD (n=2,966)	GAD (n=2,360)	BP1 (n=210)	BP2 (n=149)	SUD (n=5,592)	SUI (n=2,160)
	<i>AOR</i> (95% CI)	<i>AOR</i> (95% CI)	<i>AOR</i> (95% CI)	<i>AOR</i> (95% CI)	<i>AOR</i> (95% CI)	<i>AOR</i> (95% CI)	<i>AOR</i> (95% CI)
Constant	.23	.02	.05	.002	1.36	.08	.06
Male (1)	1.18 (1.18-1.89)	.83 (.83-.84)	1.51 (1.49-1.52)	2.24 (2.13-2.35)	2.27 (2.13-2.42)	1.40 (1.40-1.41)	.88 (.87-.89)
White (1)	.75 (.75-.75)	1.24 (1.22-1.26)	1.48 (1.45-1.51)	4.30 (3.96-4.67)	NA	.80 (.79-.80)	.50 (.49-.50)
No Post-sec (1)	.95 (.95-.95)	.65 (.65-.66)	.83 (.82-.84)	.33 (.31-.35)	.19 (.18-.20)	1.01 (1.00-1.02)	.75 (.74-.76)
Age	.96 (.96-.96)	1.13 (1.13-1.13)	1.01 (1.01-1.01)	1.29 (1.27-1.31)	.40 (.39-.41)	1.03 (1.03-1.03)	1.13 (1.12-1.13)
No Income to < \$20,000(REF)							
\$20,000 - \$39,999	1.29 (1.28-1.30)	2.03 (1.96-2.10)	.58 (.56-.60)	NA	NA	1.85 (1.81-1.89)	2.30 (2.22-2.38)
\$40,000 - \$59,999	1.61 (1.60-1.62)	3.35 (3.24-3.45)	.94 (.91-.97)	NA	NA	1.90 (1.86-1.94)	1.02 (.99-.1.06)
\$60,000 - \$79,999	2.19 (2.17-2.20)	4.02 (3.89-4.16)	1.14 (1.10-1.17)	NA	NA	2.10 (2.06-2.15)	1.71 (1.65-1.77)
\$80,000 or more	2.07 (2.06-2.09)	4.72 (4.58-4.88)	2.21 (2.14-2.27)	NA	NA	3.73 (3.66-3.81)	1.98 (1.91-2.05)
# of Lifetime Mental Health Diagnoses	-	.70 (.70-.70)	.72 (.72-.73)	1.33 (1.29-1.36)	.79 (.75-.83)	.52 (.52-.53)	.39 (.39-.40)

Note: All predictors were significant at a $p < .001$ value, two-tailed test.

AOR = Adjusted Odds Ratio; MDD = Major Depressive Disorder; GAD = Generalized Anxiety Disorder; BP = Bipolar Disorder; SUD = Substance Use Disorder; SUI = Suicidal Ideation; No Post-sec = No Post-secondary degree; NA = convergence could not be reached when variables were included in the model, which results in unreliable estimates, likely due to the low prevalence of OWB after BP.

Table 4.
Clinical Characteristics of Individuals with Optimal Well-being (OWB) After Lifetime Mental Health Diagnoses

OWB after Lifetime Disorder	No Lifetime Disorder (N=733) % (SE)	MDD (n=180) % (SE)	GAD (n=128) % (SE)	BP1 (n=8) % (SE)	BP2 (n=3) % (SE)	SUD (n=533) % (SE)	SUI (n=109) % (SE)
Comorbid Lifetime Disorders							
MDD	0	100	43.7 (.13)	80.9 (.44)	100	8.5 (.04)	1.2 (.03)
GAD	0	27.5 (.10)	100	50.8 (.56)	70.2 (.63)	4.5 (.03)	11.4 (.10)
Bipolar 1	0	2.9 (.04)	2.9 (.04)	100	100	.9 (.01)	0
Bipolar 2	0	2.4 (.03)	2.7 (.04)	100	100	.3 (.01)	0
Substance use	0	23 (.09)	19.3 (.11)	67.2 (.53)	29.8 (.63)	100	18.5 (.12)
Suicidal Ideation		99 (.02)	12.1 (.10)	0	0	3.5 (.02)	100
# of Lifetime Diagnoses							
2 Diagnoses	0	31.9 (.10)	36.3 (.13)	0	0	6.9 (.04)	1.7 (.04)
3 Diagnoses	0	9.9 (.06)	12.9 (.09)	43.7 (.56)	100	2.9 (.03)	.36 (.02)
4 Diagnoses	0	1.3 (.02)	2.1 (.04)	37.1 (.55)	0	.5 (.01)	0
^a Perceived Need for Care							
No Needs	96.4 (.01)	75.5 (.09)	75.7 (.12)	71.8 (.51)	40.9 (.68)	90.4 (.04)	81.9 (.12)
All Needs Met	3 (.01)	24.3 (.09)	23.4 (.11)	28.2 (.51)	59.1 (.68)	8.2 (.04)	9.5 (.09)
Needs Partially Met	.4 (< .001)	.20 (.010)	0	0	0	.6 (.01)	3.7 (.06)
Needs Not Met	.3 (< .001)	0	1 (.03)	0	0	.86 (.01)	4.9 (.07)
^a Perceived General Health							
Poor	0	0	0	0	0	0	.11 (<.01)
Fair	2.35 (<.01)	.65 (.02)	2.1 (.04)	0	0	1.3 (.01)	2.2 (.01)
Good	16.3 (.01)	15.9 (.08)	27.3 (.12)	35.1 (.54)	0	23.8 (.06)	17.0 (.02)
Very Good	39.7 (.02)	48.9 (.11)	36.1 (.13)	43.7 (.54)	70.2 (.63)	39.8 (.06)	39.7 (.02)
Excellent	41.6 (.02)	34.6 (.10)	34.5 (.13)	21.2 (.46)	29.8 (.63)	35.2 (.06)	40.9 (.02)
Satisfaction with Life							
Very Dissatisfied	.1 (<.01)	0	0	0	0	0	.12 (<.01)
Dissatisfied	.1 (<.01)	0	0	0	0	.04 (<.01)	.13 (<.01)
Neither satisfied or dissatisfied	1.2 (.01)	.1 (.01)	0	19.1 (.44)	0	.52 (.01)	1.1 (<.01).
Satisfied	37.7 (.02)	39.9 (.1)	43.3 (.13)	44.1 (.56)	0	42.1 (.06)	37.7 (.02)
Very Satisfied	61.6 (.02)	60 (.11)	56.7 (.13)	36.8 (.54)	100	57.3 (.06)	61.0 (.02)

Note: Ns provided are based on unweighted sample to help with interpretation.

^aPerceived need for Problems with Emotions, Mental Health, or Use of Alcohol and Drugs.

MDD = Major Depression; GAD = Generalized Anxiety Disorder; BP = Bipolar Disorder; SUD = Substance Use Disorder;

SUI = Suicidal Ideation