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Acceptability of Psychotherapy, Pharmacotherapy, and Self-Directed Therapies in Australians Living with Chronic Hepatitis C

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Abstract Despite the prevalence of psychiatric co-morbidity in chronic hepatitis C (CHC), treatment is under-researched. Patient preferences are likely to affect treatment uptake, adherence, and success. Thus, the acceptability of psychological supports was explored. A postal survey of Australian CHC outpatients of the Royal Adelaide Hospital and online survey of Australians living with CHC was conducted, assessing demographic and disease-related variables, psychosocial characteristics, past experience with psychological support, and psychological support acceptability. The final sample of 156 patients (58 % male) had significantly worse depression, anxiety, stress, and social support than norms. The most acceptable support type was individual psychotherapy (83 %), followed by bibliotherapy (61 %), pharmacotherapy (56 %), online therapy (45 %), and group psychotherapy (37 %). The most prominent predictor of support acceptability was satisfaction with past use. While individual psychotherapy acceptability was encouragingly high, potentially less costly modalities including group psychotherapy or online therapy may be hampered by low acceptability, the reasons for which need to be further explored.

Keywords Hepatitis C · Acceptability · Mental health · Psychotherapy · Pharmacotherapy

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Introduction

A Brief Background to Chronic Hepatitis C

The hepatitis C virus (HCV) is a blood-borne virus affecting the liver. Of those exposed to HCV, approximately 15–25 % spontaneously clear the virus within 6 months, while the remainder experience chronic hepatitis C (CHC) infection (Thomas & Seeff, 2005). CHC is estimated to affect approximately 221,000 Australians, comprising around 1 % of the population (The Kirby Institute, 2011). Comparatively, CHC is estimated to affect around 5.4 million (1.8 %) people in the USA and 160 million (2.4 %) globally (Lavanchy, 2011). Over a number of decades, between 15 and 20 % of those infected may progress to end-stage liver disease (Liang, Rehermann, Seeff, & Hoofnagle, 2000).

Although the majority of sufferers do not experience this level of disease progression, CHC represents a major public health problem due to its high prevalence and was estimated to have caused 366,000 deaths worldwide in 2002 (Perz, Armstrong, Farrington, Hutin, & Bell, 2006). The current anti-viral treatment regime includes pegylated interferon and

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ribavirin, with the recent addition of the protease inhibitors boceprevir and telaprevir for patients with genotype 1, facilitating a sustained viral response (SVR), whereby HCV is undetectable in blood 6 months post-treatment, in around 65–80 % of patients (Ghany, Nelson, Strader, Thomas, & Seeff, 2011). However, neuropsychiatric side-effects are common, with approximately one-third of patients experiencing depression or anxiety during treatment (Loftis, Matthews, & Hauser, 2006).

Psychological Co-morbidity

CHC can also be characterised as a major public psychological health problem due to the pervasiveness of co-morbid psychiatric disorders, particularly depression and anxiety (El-Serag, Kunik, Richardson, & Rabeneck, 2002). Psychiatric co-morbidity has a detrimental impact on the quality of life (Gutteling, Duivenvoorden, Busschbach, De Man, & Darlington, 2010) and increases patients' experience of physical symptoms, independent of disease status, such as fatigue (Dwight et al., 2000; McDonald, Jayasuriya, Bindley, Gonsalvez, & Gluseska, 2002) and pain (Morasco et al., 2010). Furthermore, the presence of psychological symptoms can be exacerbated by the neuropsychiatric side-effects of anti-viral treatment with interferon (Castera et al., 2006; Leutscher et al., 2010; Martín-Santos et al., 2008). This can necessitate the need for dose reduction or treatment cessation, subsequently leading to decreased treatment success rates (Leutscher et al., 2010; Raison et al., 2005). As a consequence, many patients with psychiatric co-morbidity are delayed or excluded from treatment (Chainuvati et al., 2006; Evon et al., 2007, 2010).

Alleviating Psychological Co-morbidity

Most research regarding mental health treatment in CHC patients has focussed on the use of anti-depressants to prevent or treat depression secondary to anti-viral treatment with interferon. This evidence has demonstrated the efficacy of anti-depressants in treating interferon-induced depression (Hauser et al., 2002; Kraus, Schäfer, Faller, Csef, & Scheurlen, 2002). The evidence for prophylactic use of anti-depressants is controversial but appears to be beneficial in 'at-risk' groups such as patients with a history of psychiatric disorders (Schaefer et al., 2005), those with elevated baseline depressive symptomatology (Raison et al., 2007), and patients being retreated after unsuccessful treatment due to interferon-induced depression (Kraus, Schäfer, Al-Taie, & Scheurlen, 2005).

However, the efficacy of psychotropic medications for other disorders such as anxiety, or for depression not induced by interferon, is still unknown. Furthermore, Neri et al. (2010) note a number of potential disadvantages to pharmacotherapy in CHC patients, including altered drug kinetics in patients with impaired liver function and physical or neuropsychiatric side-effects. Psychotherapy could therefore be a useful alternative treatment for psychiatric co-morbidity in CHC patients. Recent meta-analyses have demonstrated the efficacy of cognitive behavioural therapy (CBT) in treating depression in people with somatic disease (Beltman, Oude Voshaar, & Speckens, 2010), depression, anxiety, anger, and stress in human immunodeficiency virus (HIV) patients (Crepaz et al., 2008), and alcohol or illicit drug use disorders in adults (Magill & Ray, 2009).

Furthermore, combining psychotherapy and pharmacotherapy may prove beneficial, with a recent systematic review reporting that combining pharmacological and psychosocial treatments is more effective in treating depressive disorders in the chronically ill (Rizzo, Creed, Goldberg, Meader, & Pilling, 2011). Evidence for anxiety disorders has been contradictory, although one recent meta-analysis reported that combined treatment is more effective for panic disorder and could be more effective for social anxiety disorder (Bandelow, Seidler-Brandler, Becker, Wedekind, & Rüther, 2007). Other systematic reviews and meta-analyses (Cuijpers et al., 2011; den Boer, Wiersma, & Van den Bosch, 2004; Lewis, Pearce, & Bisson, 2012) have demonstrated the efficacy of self-help treatments without therapist input, such as self-directed book- or booklet-based treatment (bibliotherapy) and online therapy (E-therapy).

However, there has been very little research on psychotherapy or self-directed therapy in CHC patients specifically. One open-label, randomised, controlled trial of psychotherapy (Neri et al., 2010) was conducted with 211 Italian CHC patients undergoing anti-viral therapy, with half receiving cognitive behavioural and interpersonal psychotherapy. The psychotherapy group had a lower rate of onset of severe psychiatric manifestations during treatment and were less likely to require anti-depressant or benzodiazepine prescription. Another multi-centre, clinician-blinded, randomised, controlled trial of a counselling and case-management service (Evon et al., 2011) found that those receiving the intervention were more likely to become eligible for anti-viral treatment.

Acceptability

Patient preferences and the acceptability of psychological treatments is an important factor in assessing the value of a treatment. A randomised controlled trial exploring depression treatment in primary care found that educating patients about treatment choices and incorporating their preferences into treatment decisions increased patients' uptake of the treatment (Dwight-Johnson, Unutzer, Sherbourne, Tang, & Wells, 2001). An Australian study found that belief in the efficacy of anti-depressants predicted future use of anti-depressants in those experiencing depression (Jorm et al.,

2000). Finally, two recent meta-analyses of randomised controlled psychological treatment trials found that patients randomised to their preferred treatment had significantly lower drop-out rates and significantly greater improvements in treatment outcomes (Swift & Callahan, 2009; Swift, Callahan, & Vollmer, 2011).

Thus, while treatment options for psychiatric co-morbidity may be efficacious, this efficacy can be constrained by the acceptability of the therapy type. However, no research to date has explored the acceptability of psychological supports in CHC patients, despite the fact that this patient group is anecdotally known to be difficult to keep in treatment programs due to issues with compliance and adherence. Thus, the primary aim of the present study was to assess the acceptability of different forms of psychological support for CHC patients, including pharmacotherapy. The secondary aim was to assess factors associated with acceptability for the different forms of support.

Method

Design

This study adopted a cross-sectional design, comprising postal and online surveys using a non-purposive sampling frame. The postal survey was sent to CHC liver clinic outpatients of the Royal Adelaide Hospital (RAH), the largest public teaching hospital in South Australia. An equivalent online survey was conducted with Australians living with CHC in the community. Exclusion criteria were age under 18 years and co-morbid HIV or hepatitis B virus infection.

Measures

The survey consisted of six components, the first four of which were designed by the investigators. The first section assessed demographic characteristics, including age, gender, educational history, employment status, marital status, country of birth, number of dependents, and internet access. Postcodes were converted into a proxy measure of socio-economic status using the Socio-Economic Index For Areas [SEIFA] Index of Relative Socio-economic Advantage and Disadvantage Index which has a mean of 1,000 and standard deviation of 100 (Australian Bureau of Statistics, 2008).

The second section assessed the acceptability of mental health support, including formal, structured treatments usually offered as part of standard care (pharmacotherapy, individual psychotherapy, and group psychotherapy) and informal, self-directed treatments which may be offered or sought out by patients themselves (bibliotherapy and E-therapy). Acceptability was measured through presenting statements "I would be willing to use [support type]" and assessing agreement using a five point Likert Scale ranging from strongly disagree to strongly agree. This section also assessed respondents' perceptions of the ideal length of a hypothetical course of psychological support.

The third section assessed respondents' past history of access to various psychological supports, including: (1) pharmacotherapy from a GP, psychiatrist, or other medical doctor; (2) psychotherapy from a psychologist, psychiatrist, GP, or other non-medical provider (including counsellor, therapist, social worker, or other support worker); (3) self-directed booklet-based psychological support (bibliotherapy); and (4) internet-based psychological support or counselling (E-therapy). Respondents were also asked to state how satisfied they were with various types of support if they had used them, on a five point Likert Scale ranging from very dissatisfied to very satisfied. GPs were included in the questions on past use of, and satisfaction with, psychotherapy as they are common providers of psychotherapy in Australia, where there are structured training programs for GPs to provide "Focussed Psychological Strategies" using CBT and interpersonal psychotherapy, which can be claimed under GP specific items under Medicare.

The fourth section assessed disease and other medical characteristics, including: (1) estimated time since infection and diagnosis; (2) risk factors for HCV acquisition; (3) current disease-related worries and concerns; (4) viral genotype; (5) current and past history of anti-viral treatment; (6) other medical co-morbidities; and (7) current medications.

The fifth section comprised the 21-item version of the Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995). This self-administered instrument consists of three sets of seven items each measuring symptoms of depression, anxiety, and stress. Participants are asked to indicate how much they experienced these symptoms in the previous week and their answers are scored from 0 to 3, tallied with respect to the three constructs, and doubled in order to scale to the original 42-item version of the DASS. Each sub-scale score ranges from 0 to 42, with higher scores indicating greater symptom severity.

The sixth section comprised the 19-item Medical Outcomes Study Social Support Survey (MOS-SSS; Sherbourne & Stewart, 1991). Participants are asked how often someone who can give a specific type of support is available to them if they need it and responses are scored from 1 to 5. A total social support index was calculated via the average of all 19 items. This was transformed to a scale ranging from 0 to 100, with higher scores indicating a higher level of social support.

Procedure

Recipients of the postal version of the survey were identified through databases of the RAH liver clinic as people

who were diagnosed with CHC. Patient demographic and medical data, where available, were obtained in order to assess the extent of response bias following the completion of the postal survey by comparing responders and non-responders on these variables.

The postal survey was conducted in accordance with the Dillman method (1991). Eligible patients were sent an advanced notification in November 2011, providing information about the research and an opportunity to opt out of the study via mail, telephone, or e-mail. Recipients who opted out in the following 3 weeks or whose mailing address was incorrect (as indicated by the postage being returned) were excluded from the mailing list. The survey was sent in December 2011 and over the next 2 months, recipients who returned a survey, opted out, or whose mailing address was revealed to be incorrect were removed from the mailing list. A reminder letter and replacement survey was sent out in February 2012. Data collection concluded in April 2012.

The adapted online survey was uploaded in December 2011 and promoted via state and local area newspapers in South Australia, the websites and newsletters of various state and territory based CHC councils or organisations, and online community forums for Australians living with CHC. The online survey was deactivated in April 2012.

Data Analysis

Normality of continuous variables used was confirmed through Q–Q plots. To assess response bias, differences between postal survey responders and non-responders were assessed using χ^2 tests for categorical variables and t tests for continuous variables. Using t tests, DASS and MOS-SSS scores were compared, respectively, to Australian community norms (Lovibond & Lovibond, 1995) and US chronically ill patient norms (Sherbourne & Stewart, 1991), with Cohen's d calculations using the average standard deviation. Acceptability rates for different treatment options were compared using McNemar's test with α adjustments for multiple comparisons using Holm's correction (Holm, 1979). Univariate associations with acceptability rates were assessed using t tests for continuous variables and χ^2 tests for categorical variables. Multivariate associations with acceptability rates were assessed using binomial logistic regression models, with forced entry of variables with univariate associations of $p < 0.05$.

Ethics

The Human Research Ethics Committees of the RAH and University of Adelaide approved this study. All participants provided informed consent.

Results

Postal Survey Response Rate

The contact details of 533 CHC outpatients who had attended the RAH liver clinic were obtained from the hospital database. Ninety-four letters were returned due to the person no longer residing at that address, while 127 recipients opted out, 90 returned a survey, and 222 did not respond to any correspondence. One respondent was excluded due to missing data and was treated as an invalid recipient, leaving a total sample of 89 respondents out of 439 valid potential respondents—yielding a response rate of 20.3 %.

To assess the extent of response bias in this postal survey, the 89 respondents were compared with the 350 valid non-respondents based on the data obtained from the hospital database, which included age, gender, marital status, socio-economic status, Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) scores, nationality, liver fibrosis METAVIR scores (Bedossa et al., 1994), and previous injecting drug use (IDU). As shown in Table 1, those who had received anti-viral treatment in the past had a significantly lower response rate. There were no other statistically significant differences between postal responders and non-responders.

Descriptive Statistics

Demographic and Disease Characteristics

Overall, there were 156 respondents. As shown in Table 2, 89 (57.1 %) were postal responders, males comprised 57.7 % (90) of the respondents, and the age ranged from 26 to 79 ($M = 50.29$, $SD = 9.13$). One hundred and thirty-nine (80.1 %) respondents reported at least one disease-related worry or concern. These concerns included the fear of disease progression (70.5 %), transmitting the virus to others (46.1 %), becoming too sick to work (49.4 %), becoming too sick to take care of family (32.0 %), experiencing stigma from friends or family (37.8 %), experiencing stigma from work colleagues (38.5 %), experiencing stigma from healthcare workers (30.8 %), anti-viral treatment side-effects (59.6 %), other treatment concerns (40.4 %), and other non-treatment concerns (9.0 %). Eighty-three (53.2 %) were concerned about experiencing stigma from at least one source.

Psychosocial Characteristics

Table 3 displays the descriptive statistics for the psychosocial characteristics and the comparisons with 2,914 community-dwelling Australians (Lovibond & Lovibond, 1995) for depression, anxiety, and stress, and with 2,987 US chronically

Table 1 Comparison of responders and non-responders to postal survey on categorical variables

Categorical variables	*n*	Response rate (%)	χ^2	*p*
Gender				
Females	115	21.7	0.21	0.649
Males	324	19.8		
Marital status				
In relationship	125	20.8	0.02	0.901
Single	267	21.3		
Country of birth				
Born in Australia	202	20.3	0.74	0.390
Born outside Australia	63	25.4		
Past IDU				
Yes	174	21.8	1.88	0.170
No	55	30.9		
Fibrosis stage				
0	22	31.8	3.52	0.475
1	65	18.5		
2	47	21.3		
3	28	32.1		
4	23	30.4		
Anti-viral treatment history				
Previously treated	217	15.7	5.63	0.018
Previously untreated	222	24.8		

Continuous variables	Non-responder		Responder			
	M	SD	*M*	SD	*t* (*df*)	*p*
Age	48.23	11.78	50.46	9.49	−1.65 (437)	0.099
SEIFA	952.09	73.66	953.73	80.47	−0.18 (434)	0.855
HADS anxiety	7.07	4.51	7.42	4.64	−0.53 (293)	0.594
HADS depression	5.19	4.25	5.29	4.03	−0.16 (293)	0.872

IDU injecting drug use. Fibrosis stage is based on METAVIR scores, *SEIFA* Socio-Economic Index For Areas—Advantage/Disadvantage Index, *HADS* Hospital Anxiety and Depression Scale

ill patients (Sherbourne & Stewart, 1991) for overall social support. The CHC sample had significantly higher psychological symptoms and lower social support than both comparator groups. In those taking anti-depressants, the rate of severe or extremely severe symptoms was significantly higher for both depression (57.1 vs. 19.8 %; RR: 2.88 [95 % confidence interval [CI]: 1.81–4.59]) and anxiety (54.3 vs. 18.97 %; RR: 2.86 [95 % CI: 1.76–4.64]).

Psychological Support Acceptability Ratings

The acceptability of various psychological supports was then assessed. As shown in Fig. 1, the most acceptable form of support was individual psychotherapy (83.3 %; 95 % [CI]: 76.3–88.6 %), followed by bibliotherapy (61.0 %; 95 % CI: 52.8–68.7 %), pharmacotherapy (55.8 %; 95 % CI: 47.6–63.6 %), E-therapy (45.1 %; 95 % CI: 37.1–53.3 %), and group psychotherapy (36.8 %; 95 % CI: 29.3–44.9 %).

The rates of acceptability for combinations of formal supports, including pharmacotherapy and individual or group psychotherapy, was also explored. One hundred and forty-two (91.0 %) respondents found at least one formal source of support acceptable. As shown in Fig. 2, of the participants desiring formal support, there was a large overlap in the acceptability of the different treatments, of which individual psychotherapy was the most dominant. Less than 10 % endorsed pharmacotherapy or group psychotherapy but not individual psychotherapy. Conversely, nearly a quarter of the participants endorsed individual psychotherapy but not pharmacotherapy or group psychotherapy. A large portion found both individual psychotherapy and pharmacotherapy acceptable.

As shown in Table 4 row 1, individual psychotherapy was significantly more acceptable than all support types. As shown in row 2, pharmacotherapy was significantly more acceptable than group psychotherapy. As per rows 3 and 4, bibliotherapy was significantly more acceptable than group psychotherapy and E-therapy. When asked how long they would want a course of support to last if they did access it, the length of support desired ranged from 1 to 52 weeks (MDN = 10, IQR = 6–12) and the total

Table 2 Descriptive statistics for demographic and disease characteristics

Categorical variables	*n*	%
Respondent source		
Postal	89	57.1
Online	67	42.9
Gender		
Male	90	57.7
Female	66	42.3
Education		
Year 10	55	35.5
Year 11	16	10.3
Year 12	17	11.0
VET	37	23.9
University	30	19.4
Employment		
Full time	46	29.5
Part time	20	12.8
Casual	15	9.6
Unemployed	15	9.6
Student	5	3.2
Home duties	6	3.8
Disability support pension	53	34.0
Age pension	3	1.9
Other	2	1.3
Dependents		
No	104	66.7
Yes	52	33.3
Relationship status		
Married/de facto	72	46.2
Separated/divorced/widowed	31	19.9
Single	53	34.0
Nationality		
Born in Australia	114	74.0
Born overseas	40	26.0
Internet access		
No	32	20.8
Yes	122	79.2
Risk factors for HCV acquisition		
Unknown	27	17.3
IDU	76	48.7
Tattoos	19	12.2
Iatrogenic	34	21.8
Other	11	7.1
Viral genotype		
Unknown	62	41.3
1	46	30.7
2	19	12.7
3	18	12.0
4	1	0.7
6	4	2.7
Anti-viral treatment		
Current	15	9.8
Past	91	59.5
Never	47	30.7
SVR		
No	46	52.9
Yes	34	39.1
Results pending	7	8.0
Other health problems		
No	50	32.7
Yes	69	45.1
Current medications		
All type	103	67.3
Psychotropic	56	36.6
Anti-depressant	36	64.3
Anxiolytic	11	19.6
Other psychotropic	35	62.5

Continuous variables	Range	*M*	SD
Age (years)	26–79	50.3	9.1
SEIFA	788–1180	978.2	82.7
Years since infection	1–44	23.3	10.5
Years since diagnosis	0.02–40	13.1	7.8

VET vocational education and training, *HCV* hepatitis C virus, *IDU* injecting drug use, *SVR* sustained viral response (HCV clearance) in those who had previously undergone anti-viral treatment, *SEIFA* Socio-Economic Index For Areas—Advantage/Disadvantage Index, which has a mean of 1,000 (SD = 100) in Australia

commitment in hours ranged from 1 to 208 h (MDN = 12, IQR = 8–24).

Psychological Treatment History

The rates of uptake of, and satisfaction with, psychological supports are displayed in Table 5. Overall, 73 (54.9 %) had received any form of pharmacotherapy and 87 (65.4 %) had received any form of psychotherapy, while 43 (58.9 %) were satisfied with at least one source of pharmacotherapy and 65 (74.7 %) were satisfied with at least one source of psychotherapy received. In general, psychotherapy was used more frequently than pharmacotherapy, with the odds of having used one form of psychotherapy but not pharmacotherapy being 3.00 times higher than the reverse (95 % CI: 1.28–7.06, $p = 0.013$). Moreover, the odds of being satisfied with at least one source of psychotherapy but not satisfied with any source of pharmacotherapy was 3.60 times higher than the reverse (95 % CI: 1.34–9.70, $p = 0.011$).

Table 3 Descriptive statistics for psychosocial characteristics and comparisons with norms

Variable	CHC sample		Norms[a]		*df*	*t*	Cohen's *d*	Percentage in each DASS[b] category				
	M	SD	*M*	SD				Normal (0–78)	Mild (78–87)	Moderate (87–95)	Severe (95–98)	Extremely severe (98–100)
Depression	14.42	12.67	6.34	6.97	3063	13.17*	0.82	42.4	15.9	13.2	7.9	20.5
Anxiety	10.68	9.92	4.70	4.91	3063	13.60*	0.81	44.4	7.9	20.5	6.6	20.5
Stress	15.54	11.93	10.11	7.91	3063	7.98*	0.55	54.3	9.9	9.9	15.2	10.6
Social support	51.10	27.32	70.1	24.2	3135	9.32*	0.74	–	–	–	–	–

* $p < 0.001$

[a] Norms for depression, anxiety, and stress refer to 2,914 community-dwelling Australians (Lovibond & Lovibond, 1995). Norms for social support refer to 2,987 US chronically ill patients (Sherbourne & Stewart, 1991)

[b] DASS categories are based off percentile cut-off points using distributional differences in the standardisation sample (Lovibond & Lovibond, 1995)

Univariate and Multivariate Associations with Acceptability

In the univariate analysis, higher pharmacotherapy acceptability was associated with: lack of internet access; past use of pharmacotherapy; satisfaction with past pharmacotherapy; and current anti-depressant treatment. Higher individual psychotherapy acceptability was associated with: higher anxiety; higher stress; being unemployed, casually employed, or in receipt of a disability pension; having no dependents; being single; having used psychotherapy previously; and being satisfied with past psychotherapy. Group psychotherapy acceptability was not significantly associated with any variables investigated. Higher bibliotherapy acceptability was found in those who were satisfied with past bibliotherapy use (85.7 vs. 40.7 %, $\chi^2 = 12.01$, $p < 0.01$). Finally, E-therapy acceptability was associated with: higher SEIFA scores; being an online survey respondent; being female; and having internet access. Predictors which were non-significant at the univariate level for all treatments included: age; years since diagnosis; depression; social support; high school completion; Australian nationality; past IDU; disease-related concerns; stigma-related concerns; current anti-viral treatment; past anti-viral treatment; past SVR; and the presence of other major illnesses.

The variables which were significant at the univariate level were then entered into a multivariate model in order to determine the independent predictors of acceptability for pharmacotherapy, individual psychotherapy, and E-therapy, as shown in Table 6. As there were no significant univariate predictors for group psychotherapy and, given that only satisfaction with past use predicted bibliotherapy acceptability, no multivariate analysis was performed for these treatments. Satisfaction with past pharmacotherapy and current anti-depressant use remained as significant predictors of pharmacotherapy acceptability, individual psychotherapy acceptability was predicted by past psychotherapy satisfaction, and higher SEIFA scores predicted higher E-therapy acceptability.

Discussion

The most important finding of this study is the encouragingly high rate of formal treatment acceptability in these patients with CHC who experience markedly increased psychological symptoms compared to Australian community controls and significantly diminished social support compared to US chronically ill patient controls. When asked how long they would want a course of psychological support to last if they were to use it, the average response was 10 sessions of care. This corresponds exactly with the current limitations of reimbursable psychotherapeutic support in Australia under the *Better Access to Mental Health Care* program, whereby patients are eligible for 10 sessions of psychotherapy per calendar year.

Somewhat more problematic however, was the extremely low acceptability of group psychotherapy. Under the *Better Access* program in Australia, individuals are also eligible for reimbursement for an additional 10 sessions of group therapy each calendar year—yet if this is not acceptable to patients, it is likely to be an underutilised resource.

While this study was not designed to fully elucidate the reasons behind group therapy's low acceptability, recent qualitative research has found that stigma and fears regarding breaches of privacy are significant potential barriers to CHC patients seeking mental health treatment in general (Stewart, Mikocka-Walus, Harley, & Andrews, 2012). The discrepancy between the acceptability of individual versus group treatment suggests that these fears may be stronger with regard to other group members as opposed

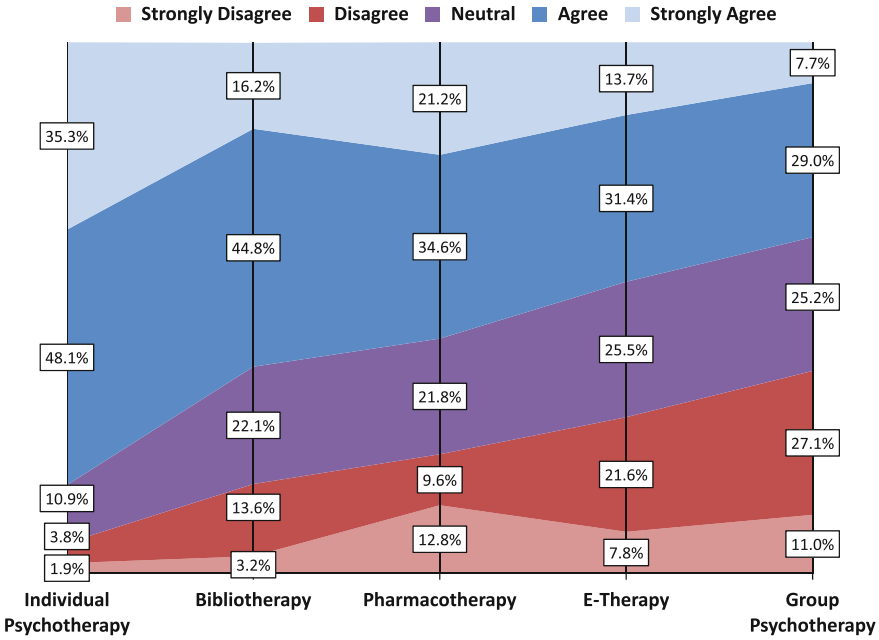

Fig. 1 Rates of acceptability for psychological supports

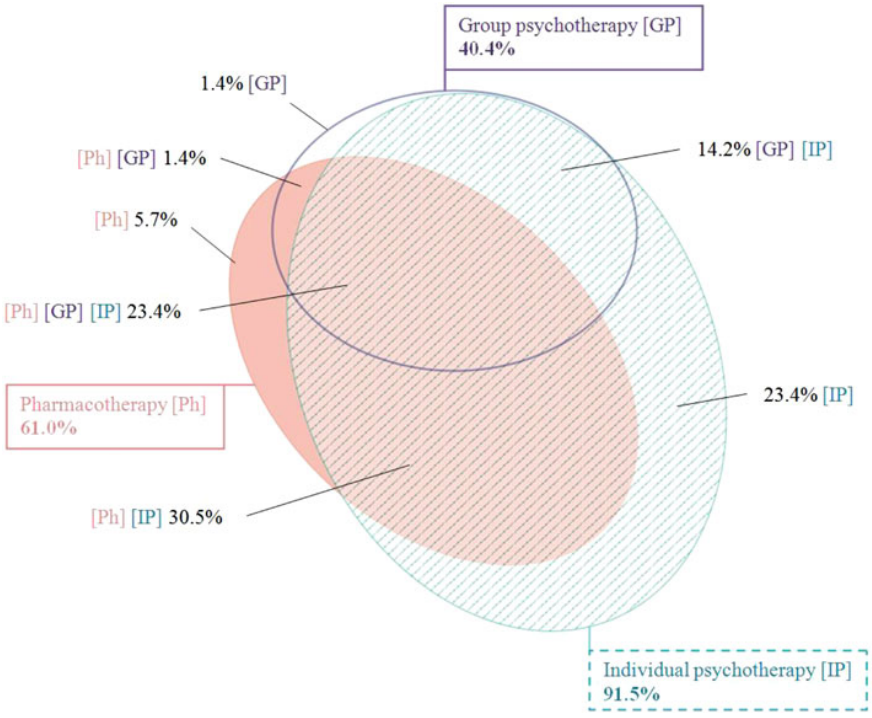

Fig. 2 Exclusive and co-occurring acceptability for formal psychological supports. Generated using EulerAPE: http://www.eulerdiagrams.org/eulerAPE/

to the mental health clinicians facilitating group therapy. Unfortunately, the assessment of stigma was limited to social, occupational, or general healthcare providers in the present study and did not specify mental health care providers or other mental health patients in a group therapy context. Future research may explore whether group psychotherapy is acceptable if participation is restricted to people living with CHC.

Overall, individual psychotherapy was considered by the respondents to be the most acceptable, followed by bibliotherapy, pharmacotherapy, E-therapy, and group psychotherapy. These findings generally correspond with those found in the general Australian public. A recent national survey of over 6,000 Australian adults presented participants with case vignettes of depression, schizophrenia, post-traumatic stress disorder (PTSD), and social phobia

Table 4 Comparison of rates of acceptability across support types

	Individual psychotherapy			Group psychotherapy			Bibliotherapy			E-therapy		
	p	OR	95 % CI	*p*	OR	95 % CI	*p*	OR	95 % CI	*p*	OR	95 % CI
Pharmacotherapy	**<0.001**	**0.19**	**0.10–0.37**	**0.001**	**2.32**	**1.41–3.82**	0.298	0.74	0.44–1.23	0.105	1.50	0.95–2.38
Individual psychotherapy	–			**<0.001**	**19.0**	**6.95–51.93**	**<0.001**	**4.78**	**2.33–9.80**	**<0.001**	**12.6**	**5.07–31.32**
Group psychotherapy	–			–			**<0.001**	**0.34**	**0.20–0.57**	0.124	0.65	0.39–1.08
Bibliotherapy	–			–			–			**0.001**	**2.56**	**1.44–4.57**

The support type found in the left column is the reference group for that row of comparisons. Comparisons were made using McNemar's test, comparing the number of persons finding support type A acceptable but not support type B, with the number who find support B acceptable but not support A. α adjustment was performed using Holm's correction for ten comparisons (Holm, 1979). Statistically significant comparisons are indicated in boldface

Table 5 Rates of prior uptake of, and satisfaction with, psychological supports

Support type	Used support		Satisfaction ratings (%)				
	n	%	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
Pharmacotherapy							
GP	67	50.4	9.0	17.9	20.9	41.8	10.4
Psychiatrist	38	28.6	7.9	26.3	18.4	39.5	7.9
Other[a]	27	20.3	14.8	22.2	22.2	33.3	7.4
Psychotherapy							
Other[b]	63	47.4	6.3	7.9	17.5	46.0	22.2
Psychologist	61	45.9	4.9	9.8	21.3	45.9	18.0
GP	51	38.3	3.9	13.7	29.4	37.3	15.7
Psychiatrist	45	33.8	13.3	13.3	28.9	35.6	8.9
Bibliotherapy	55	41.4	5.5	9.1	34.5	49.1	1.8
E-therapy	23	17.3	4.3	13.0	47.8	21.7	13.0

GP general practitioner

[a] Refers to other medical practitioners

[b] Refers to counsellors, therapists, social workers, or other support workers

(Reavley & Jorm, 2011). Compared with psychotherapy or CBT, anti-depressants were rated as helpful more frequently for depression and were rated as helpful at a similar frequency for schizophrenia, PTSD and social phobia. However, anti-depressants were rated as harmful significantly more frequently than psychotherapy or CBT for all disorder types. Compared with psychotherapy or CBT, anti-psychotics, tranquilisers, and sleeping pills were rated as helpful much less frequently, and were rated as harmful much more frequently.

This trend appears to translate across countries, with a systematic review of 13 studies exploring patient preferences in depressed primary care patients and the general public reporting that the majority preferred psychotherapy or counselling over anti-depressants in the treatment of depression (Van Schaik et al., 2004). Psychotherapy appears to be preferred due to the increased opportunity for personal contact and the perception that it addresses the root cause for mental health problems, while fears of side-effects and addiction are common in people's perceptions of psychotropic drugs (Van Schaik et al., 2004). The sparse research comparing the acceptability of group versus individual psychotherapy has reported that individual treatment is generally the preferred option (McDermut, Miller, & Brown, 2001; Sharp, Power, & Swanson, 2004).

As found in the present study, bibliotherapy also appears to be very acceptable to the general Australian public; in a 1995 national survey of over 2,000 Australians, when comparing the likely helpfulness of interventions for case vignettes for depression and schizophrenia, respondents gave a higher rating for self-help books than psychotherapy or pharmacotherapy (Jorm et al., 1997), although ratings for these formal treatments have increased markedly in the time since (Reavley & Jorm, 2012). Similar again to the present findings, while internet-based therapies are acceptable to the general Australian public, the vast majority believe face-to-face treatment is preferable (Gun, Titov, & Andrews, 2011).

Importantly, the rates of previous uptake and satisfaction with psychological supports largely followed the trends found in acceptability. In particular, all-type psychotherapy was used more frequently in the past and psychotherapy users were more satisfied, compared with pharmacotherapy. Satisfaction with previous use of the respective support type was a strong predictor of acceptability for pharmacotherapy, individual psychotherapy, and self-directed bibliotherapy. Also taking into account the high prevalence of CHC and the

Table 6 Multivariate analysis of support acceptability

Variable	Pharmacotherapy			Individual psychotherapy			E-therapy		
	OR	*p*	95 % CI	OR	*p*	95 % CI	OR	*p*	95 % CI
Demographic variables									
Respondent source									
Postal	–	–	–	–	–	–	1.00	–	–
Online	–	–	–	–	–	–	1.43	0.366	0.66–3.09
Gender									
Male	–	–	–	–	–	–	1.00	–	–
Female	–	–	–	–	–	–	1.57	0.217	0.77–3.24
SEIFA	–	–	–	–	–	–	**1.01**	**0.029**	**1.00–1.01**
Employment									
Casually employed, unemployed, DSP	–	–	–	1.00	–	–	–	–	–
Full or part time employed, student, home duties, age pension	–	–	–	0.31	0.272	0.04–2.52	–	–	–
Dependents									
None	–	–	–	1.00	–	–	–	–	–
One or more	–	–	–	0.36	0.234	0.07–1.93	–	–	–
Relationship status									
Single	–	–	–	1.00	–	–	–	–	–
In relationship	–	–	–	0.50	0.453	0.08–3.02	–	–	–
Internet access									
No	1.00	–	–	–	–	–	1.00	–	–
Yes	0.38	0.232	0.08–1.85	–	–	–	2.30	0.126	0.79–6.66
Service variables									
Service satisfaction									
Dissatisfied/neutral	1.00	–	–	1.00	–	–	–	–	–
Satisfied	**3.67**	**0.031**	**1.13–11.94**	**9.60**	**0.009**	**1.76–52.21**	–	–	–
Current AD treatment									
No	1.00	–	–	–	–	–	–	–	–
Yes	**20.13**	**0.006**	**2.39–169.76**	–	–	–	–	–	–
Psychosocial variables									
Anxiety	–	–	–	0.97	0.731	0.82–1.15	–	–	–
Stress	–	–	–	1.03	0.641	0.91–1.17	–	–	–

No multivariate data is presented for bibliotherapy as there was only one variable showing a significant univariate association. Similarly, no data is presented for group psychotherapy as there were no significant univariate associations with this treatment type. Variables without statistics presented were not entered in the multivariate model for that treatment type as they were not significant at the univariate level. Statistically significant predictors at the multivariate level are indicated in boldface

SEIFA Socio-Economic Index For Areas—Advantage/Disadvantage Index, *DSP* disability support pension, *AD* anti-depressant

pervasiveness of psychiatric co-morbidity within this population, the development of a mental health treatment protocol specific to the needs of CHC patients is therefore justifiable.

Considering that a very small proportion endorsed other formal treatments but did not find individual psychotherapy acceptable and, given that individual psychotherapy was significantly more acceptable than any other support type, this treatment type appears to be an ideal candidate for a treatment protocol in this population. However, this decision also needs to be made in conjunction with a consideration of both efficacy and cost, or cost-effectiveness. While cost-effectiveness will vary across regions, an Australian economic modelling study reported that bibliotherapy is the most cost-effective treatment for depression due to its very low cost, followed by CBT from a public psychologist, tricyclic prescription, CBT from a private psychologist or psychiatrist, and serotonin selective reuptake inhibitor prescription (Vos, Corry, Haby, Carter, & Andrews, 2005). Also, CBT provided in group settings is much more cost-effective than individual treatment (Vos et al., 2005).

Costs to the patient will similarly vary across regions, yet while both psychotherapy and pharmacotherapy involve a consultation fee which may or may not be subsidised by public or private health-care schemes, pharmacotherapy necessitates the added cost of purchasing the medication. The individual costs of self-directed treatments such as bibliotherapy or E-therapy would depend on the funding in place for these interventions and the level of therapeutic guidance but would presumably involve minor costs to the patient. Equity of access to services is also an important factor, such as in those living in rural or remote areas, where self-directed options such as bibliotherapy and E-therapy may help fill gaps in access to mental health professionals.

A sizeable proportion of patients found both psychotherapy and pharmacotherapy acceptable. Furthermore, of the patients currently taking an anti-depressant, 59 % were still experiencing severe to extremely severe depression and 56 % were still experiencing severe to extremely severe anxiety. Although the relationship between current use of psychotherapy and continuing psychological symptoms was not explored, it is arguable that a similar result may be found. Nelligan et al. (2008) similarly found that 48 % of a large sample of US veterans with CHC who were prescribed an anti-depressant were still experiencing moderate to severe depression. These findings collectively provide evidence of a significant therapeutic gap and thus the potential for greater benefit with the combined use of pharmaco- and psychotherapies.

In contrast to individual psychotherapy, pharmacotherapy, and bibliotherapy, there was no association between group psychotherapy acceptability and satisfaction with past use, which may reflect the fact that the satisfaction question did not distinguish between uptake of individual versus group forms of psychotherapy. It is probable, given the low acceptability of group psychotherapy, that most respondents who had used psychotherapy in the past were referring to individual therapy—producing the significant relationship between satisfaction and individual but not group psychotherapy acceptability. With regard to E-therapy acceptability, the lack of a relationship with satisfaction with past use could be due to power restrictions based on the low proportion of respondents who had previously used E-therapy.

In the multivariate analysis of E-therapy acceptability, higher SEIFA scores remained a significant predictor while internet access and response source did not. While SEIFA is only a proxy measure, this suggests that those from a more disadvantaged socio-economic background may be less likely to use E-therapy services. The lack of any relationship between the acceptability of any support type and postal versus online respondent source support the generalisability of the findings across tertiary outpatients and community respondents.

Limitations

The main limitation of this study is the modest sample size and low response rate of 20 % for the postal survey sample, introducing the risk of response bias. However, postal responders and non-responders did not differ with respect to demographic, disease, or psychological characteristics, with the exception of a slightly higher response rate in those who had not received past anti-viral treatment. However, this may have actually reduced sample bias as the rate of anti-viral treatment uptake in Australia is very low (Gidding et al., 2009). The extent of response bias in the online survey is unknown, although it was advertised through a wide range of sources.

Secondly, while this study attempted to exclude patients known to have previously cleared the virus through past treatment from receiving the survey, 34 patients still returned surveys with responses stating they had achieved a SVR. This data was retained as: (1) many patients may need ongoing management for monitoring of pre-existing liver damage and/or follow-up tests to detect any viral relapse; (2) a SVR was not significantly associated with the primary outcome of acceptability for any support type; and (3) patients with a SVR did not significantly differ with regard to depression, anxiety, stress, or social support (results not shown but available on request). This may explain the higher rate of response in the postal sample in those who had not undergone anti-viral treatment, due to some non-postal responders having cleared the virus and not seeing the need to complete the survey.

A third limitation of the study was the relative heterogeneity in the current and past history of having received anti-viral therapy, which is known to affect psychosocial outcomes. However, given that these factors did not predict acceptability, this heterogeneity may increase confidence in the generalisability of the acceptability ratings found across different patient experiences of anti-viral therapy.

An additional limitation was the lack of data regarding the acceptability of different types of psychotherapy (e.g. CBT, interpersonal psychotherapy, or mindfulness-based therapies) or pharmacotherapy (such as anti-depressants, anxiolytics, and anti-psychotics). This data was not obtained due to concerns with explaining these concepts in a way which would be comprehensible to those with low mental health literacy, while keeping the survey brief enough to promote participation. Future research should explore the acceptability of more specific types of psycho- and pharmacotherapy.

Conclusion

Individual psychotherapy appears to be the most acceptable form of psychological support for Australians living with

CHC. It also seems to be the most frequently used support type with the highest satisfaction rating. Given the high rate of psychiatric co-morbidity in this patient group and the clinical benefits of alleviating this co-morbidity, the next step is to develop and evaluate a mental health treatment protocol tailored specifically to CHC patients—potentially based on individual psychotherapy but with consideration of efficacy, cost, equity in access, and the practicality of alternative treatment modalities.

The sole study in the literature to date found that combined CBT and interpersonal psychotherapy provided in an individual format was effective in preventing the onset of severe psychiatric events during anti-viral treatment and reducing the need for psychotropic prescription (Neri et al., 2010). Further research is necessary to explore the treatment of psychiatric symptoms outside of the anti-viral treatment context. Given the higher cost involved with individual psychotherapy and the limited number of mental health care providers, it is important to further explore the barriers to less costly alternatives such as group psychotherapy and E-therapy which have very low acceptability in this patient group. Bibliotherapy had a reasonably high rate of acceptability and may prove to be a beneficial option in CHC patients if proven to be efficacious and adhered to. Although pharmacotherapy had moderate acceptability, as a common first-line treatment for many patients the reasons for the lower acceptability of pharmacotherapy in comparison to individual psychotherapy also needs to be further explored.

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