Online Supplement 1

Search strategy

Ovid MEDLINE(R) 1946 to July Week 1 2018
1. mental health/
2. exp mental health services/
3. exp psychotherapy/
4. exp psychiatry/
5. psychiatric nursing/
6. community mental health centers/
7. hospitals psychiatric/
8. substance abuse treatment centers/
9. exp mental disorders/
10. exp behavioral symptoms/
11. mentally ill persons/
12. ((mental* or psychiatric) adj (ill* or disorder* or disease* or health* or patient* or treatment or hospital*)).tw.
13. ((chronic* or severe*) adj (mental* or psychiatric)).tw.
14. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13
15. ((consumer* or mental health consumer* or survivor* or people with mental illness) adj2 (provide* or service provider* or staff* or team* or personnel or employ* or case manag* or service delivery or collaborat* or aide or aides or specialist* or consultant* or delivered or operated or assisted or led or managed or conducted or directed or run)).tw.
16. (peer adj (train* or tutor* or work* or provider* or service* or staff or specialist* or support or companion* or organi#ed or based or run or delivered or led or managed or conducted or directed)).tw.
17. 15 or 16
18. 14 and 17
19. limit 18 to humans

Online supplement 3

Typology of modifications

(Reference: # citation number in Data abstraction table [Online supplement 2]).

Type of Modification	**Description**	**Pre-planned instances of this type of modification**	**Un-planned instances of this type of modification**	**Strength of theme** *Number of papers in which the theme was coded*
1. Role Expectations	Remit of the PSW role		**1.1 Target group to work with** Increase cultural match between service-users and Peer Support Workers (PSWs) (#28) Match patients with PSWs based on demographic and lived experience (#23)	31
		1.2 Content of PSW PSWs provide information about shopping/ cooking on a budget due to service-users with low income, e.g. strategies for purchasing healthy food including using food stamps (#10, #32) Amend Peer Support Worker (PSW) facilitator script to reduce mention of family due to patient isolation (#32) Stress management advice modified for relevance to local population (#32) Content amended to include sessions relevant to service-users e.g. trauma recovery and military combatants (#36) PSW developed primarily as a form of social support that incorporates informational, appraisal and emotional assistance (#8) Adapt Cognitive Behavioural Therapy skills content to each specific service-users problems (#24)	**1.2 Content of support** PSWs help individual service-users make behavioral health changes in culturally congruent ways (#25) PSWs to make and attend medical appointments with service-users (#25) Simplify content of intervention for service-users; focus more on mental health and PSW sharing personal challenges and success and less on direct advice (#3) Recovery focused content: promoting hope and valuing participants strengths (#21) Focus on the social care aspects of clients' needs and their role as befrienders and advocates of clients (#7) PSW role 'evolved' to encompass community support responsibilities due to lack of service-user need in acquiring employment (#22)	

		Employ consumer peer providers to expand frequency of social contact, advocate for client needs and to support health promotion activities (#17) **1.3 Process of support** Gradually increase PSW contribution in co-facilitated peer support work (#25) Adapt communication style to informal/use of language of local cultural colloquialisms and modes of expression (#38) Increased focus on personal rather than professional relationships with service-users and clinical staff (#38) Selection and planning of culturally relevant community activities (#38) Allow local sites to make modifications to PSW role (#33) **1.4 Structure of support** Reduce expenditure of PSW intervention to save money (#32) **1.5 Materials used with service users** Reduce amount of text on materials (#39) Clear Navigation aids for materials (#11) Simplified presentation of information (#39) Materials laid out in a simple-to-follow format (#36) Low reading age material (#39,#10) All text materials are read out (#39)	**1.3 Process of Support** PSWs increased focus on minimisation of risk and compliance to meet programme guidelines for funding purposes (#13) Provide PSWs with service user information before first contact (#23) Adapt intervention to enable patients to make behavioural changes (i.e. physical exercise) in the home to save money; Add a list of low-cost facilities for service-users to use to save money (#25) Have more realistic PSW/Staff expectations of PSW intervention (#37) Develop a tracking plan [for displaced persons] before starting PSW with a service user (#36) **1.4 Structure of support** Increase PSW remuneration and employment hours (#23) Reduce length of PSW intervention programme (#21) PSW programme to begin immediately following crisis resolution team (CRT) discharge (#21) Focus intervention delivery at a critical period of risk - 4 weeks post discharge (#18) Integrated within mental health services but offering additional, distinct support (#21) **1.5 Materials used with service users** PSWs modify supplemental hand out material (#25) Section on developing a crisis plan omitted; Section on "moving on after crisis" brought to the front of the plan; "Recovery means " page left for individual to complete (#21) Redesign with green leaf motif to represent personal growth (#21)	

			More white space incorporated into the plan for free text writing, drawing or adding photos etc. (#21) Develop self-monitoring tools for PSWs to give service-users to track progress in condition (#25)	
2. Initial Training	Training for PSWs before taking on the role	**2.1 Structure** Increase number of sessions/frequency of sessions (#31,#32) **2.2 Topics covered** Spread topics across more than one session (#14)	**2.1 Structure** Training package reduced in length (#7) Increase length of sessions (#36) Increase number of sessions/frequency of sessions (#14,#36) Add breaks in course delivery - e.g. 16 sessions delivered across 20 weeks (#4) Provide additional sessions for service-users who have missed sessions (#25) **2.2 Topics covered** Spread topics across more than one session (#36) Additional NHS Trust training and induction - including safeguarding and personal safety training; orientation to NHS policies and procedures (#21) More training on technology (#3) **2.3 Training process** Make training less didactic and include active and engaging learning activities for PSW (#3) Provide opportunities for interaction with others (#7) Adapt training to enhance the provision of appraisal support (#7,#9) PSWs to shadow clinicians (#5)	15
3. Type of contact	How PSWs work with service users	**3.1 Individual** Use one-to-one format to increase engagement with population (#15, #18, #29) **3.2 Group** Use group format (#32) Include mutual support in group format (#10) Include multiple groups of differing levels of intensity due to heterogeneous population (#16) **3.3 Individual and Group**	**3.1 Individual** Use one-to-one format to increase engagement with population (#1,#21) Increase one-to-one support to mitigate service-users lack of self-monitoring/self-management (#25)	13

		Introduce option of one-to-one or group format for service-users to choose from to meet their needs (#19) **3.4 Telephone** Add on-going automated telephone calls to service-user for enhanced monitoring and feedback in addition to PSW input (#26) **3.5 Online** The interactive-computer program teaches CBT skills tailored to each user's specific issues or challenges (#24)	**3.4 Telephone** Add telephone contacts or texts between sessions to increase service-user engagement with PSWs (#25)	
4. Role Extension	Flexibility beyond traditional PSW role	**4.1 PSWs develop extra skills or roles** Modify PSW role to encompass health coach role and not just support e.g. emotional support (#2) Integrate chronic care model and recovery model into a single program (outreach care management, pharmacotherapy and self-management skills programme) (#20) Integrate Illness Management and Recovery into Assertive Community Treatment by the work of a peer specialist (i.e. a consumer of mental health service who was doing well in their own recovery) (#30) **4.2 PSWs co-work with clinicians** Include clinical professionals in co-facilitation (#27) Group self-management program co-led by professional and a trained peer specialist (#20)	**4.1 PSWs develop extra skills or roles** Modify organisational structure so that PSWs function outside of the traditional mental health system (#35) Enhance formalisation/professionalisation of role (#34) **4.2 PSWs co-work with clinicians** Include advanced practice nurse to enhance nursing care co-delivery (#6, #17)	9
5. Workplace support for PSWs	Type of workplace support	**5. Workplace support** Increase use of environmental supports e.g. calendars and reminders due to cognitive deficits (#10, #18) Peer mentors under supervision of staff (#35) Adapt supervision arrangements and monitoring of job performance to fit local legislation (Americans with Disabilities Act) (#12)	**5. Workplace support** Regular group and one-to-one supervision available for PSWs; focus on helping PWS better understand the specifics of their role, plan for future contacts and responsibilities; and opportunities to learn from others and support each other (#5, #21) PSWs under supervision of staff, not to report to staff (#35)	8

			Informal summaries of contact between PSWs and staff to be replaced by formal summaries of key decisions made; E.g. a shared participation agreement which specifies certain responsibilities for all involved (#5) Enhance screening of PSWs who may want to withdraw from involvement in service-user care (#23) Access to support from an experienced PSW (#21)	
6. Recruitment	Recruiting to PSW roles	**6. Recruitment** Two Veterans were selected as part of the research team to provide support and guidance (#24)	**6. Recruitment** Recruit PSWs with work experience (#23) Open market NHS employment, competitive recruitment - to support integration into crisis resolution teams and to recognise demands of job role (#21)	3

Online supplement 4

Typology of rationales

(Reference: # citation number in Data abstraction table [Online supplement 2]).

#	Type of Rationale	Description	Pre-planned rationale of this type of modification	Un-planned rationale for this type of modification	Strength of Theme *Number of papers in which the theme was coded*
1	**To provide best possible peer support**	To increase service user participation in PSW program	**1.1 To match on cultural aspects** For cultural relevance (#38) Increase cultural match - and support offered through faith communities (#28) To relate to participants by employing and being receptive to culturally appropriate colloquialisms and modes of expression (#38) Veteran-peers were introduced to participants as fellow veterans who are available to assist them with completion of the cCBT program, as well as to provide support and guidance (#24) **1.2 To increase service user engagement in direct work with PSW** Peer support might be enhanced (#26) Patients who were recurrently admitted had problems engaging with services (#35) Due to literature indicating Assertive Community Team being insufficiently empowering (#30) To improve motivation and engagement in care (#10) To expand the frequency of social contact for clients, to advocate for client needs and to support the efforts of clients to improve their health promotion activities (#17)	**1.1 To match on cultural aspects** To avoid conflicting with patients cultural identity (#25) Tension (related to ethnic divide across peers and their supervisors) (#38) To explain the nuances of content effectively (#36) **1.2 To increase service user engagement with PSW** To help older adults with serious mental illness stay focused and engaged (#4) Likely to be acceptable and feasible for more participants than a group programme (#21)	**30**

			Provides patients with the convenience and flexibility of using the program at any time and in any location with internet access (#24) The open door policy for participants to re-join the program after extended absences (#16) This facilitated contact with individuals who in other models (e.g., groups) might not engage (#18) For cohorts that met for longer periods - to allow in-depth discussion of each chapter (#14) eModules are designed to be reviewed together by a certified peer specialist and consumer (#11)		
			1.3 To provide person-centred care Emphasis was placed on providing options for different intensity levels (#16) The Flinders model provided an alternative for patients who did not want, need or could not tolerate groups (#19) Patient need/preference (#31) When women were asked for their own explanations as to why they experienced Post-Partum Depression (PPD), they commonly responded with “lack of support” and “feeling isolated.” When asked what advice they would give to new mothers currently suffering from PPD, the foremost suggestion proffered was “find someone to talk to” (#8)	**1.3 To provide person-centred care** The project originally intended to hire consumers as job coaches. Once implementation began it was obvious that many participants had the skills to do their jobs (#22) Consultations with consumers, their families and service providers, showed that there was a greater need (#1) Participants felt it would be helpful (#3) Feedback from service-user reference group: calming and symbolic of growth and renewal (#21) Reinforced as important by PSWS following preliminary testing (#21) Feedback from service-users and other stakeholders about what help is wanted and needed following Crisis Home Resolution Support (#21)	
			1.4 To enhance service user use of self-management strategies when not with the PSW To train peers to use technology to deliver PeerTECH and provide psychiatric and medical self-management in a home-based setting (#11)	**1.4 To enhance service users use of self-management strategies** To encourage participants to verbally report self-monitoring, even if they did not use their logs (#25)	

			FACTS, specific facts related to the weeks topic to be used for discussion, and FUTURE, practical suggestions and tips that participants can immediately apply in their daily lives (#36) Peer specialists teaching Illness Management and Recovery could provide a valuable role in engaging consumers in the process of identifying personal recovery goals and teaching illness self-management skills (#30) Smartphone application is designed to reinforce skills learned from in-person sessions (#11) Through simplifying the concepts and supporting real-time reinforcement of skills using a smartphone application (#11)		
2	**To best meet service user needs**	To meet the needs of local mental health service users	**2.1 To meet physical health needs** May provide the right combination of reciprocity and targeted support to achieve clinically significant cardiovascular risk reduction in individuals with Severe Mental illness (#2) To provide higher-level nursing care and to specifically address unmet physical health needs (#17) For cognitive deficits seen in this population (#39) Due to the heterogeneity of the study population (#16) **2.2 To meet mental health needs** The potential for the intervention program to produce greater long-term symptom improvement and perceiving recovery compared with usual depression care (#20) Serve as medical advisors to offer referral and support for attendees who may be experiencing acute distress (#27) Individuals receiving intensive one-to-one have the potential to experience increases in quality of life, increased perceptions of recovery, improved functioning and decreased self-		**16**

			reported symptoms when compared to individuals not receiving such support (#29) Environmental supports are often critical for individuals engaging in community activities and services, particularly among those who might be struggling with cognitive challenges, fatigue, and lethargy attributable to medication side effects, the negative symptoms of schizophrenia, and depression (#18) Many patients clearly stated that being in a group would distress them and aggravate their psychiatric symptoms (#19) **2.3 To address risk** First 4 weeks have been highlighted as the critical period of risk of readmission (#18) **2.4 To not over-burden SUs** Wellness Specialists were concerned that consumers may find some of the Diabetes Prevention Program strategies overwhelming and require more time to process the information and practice strategies (#32) Because of potential gaps in health literacy and cognitive limitations (#10)	**2.3 To address risk** All participants in the trial will have experienced a recent mental health crisis, this is likely to be an immediate concern (#21) **2.4 To not over-burden SUs** To mitigate effects of missed sessions and intervention content (#25) Due to patients' difficulty making and keeping medical appointments (#25) To allow free text writing drawing or adding photos for those with literacy difficulties or who prefer a less structured approach (#21) To create a clearer presentation of content (#25) Memory problems (related to older age, mental health symptoms, and medication side effects), low education and literacy levels, and existing physical health symptoms (e.g. arthritis) made it difficult for participants to remember (#25) To increase the relevance of the intervention for people with SMI (#3)	
3	**To meet organisational needs**	To identify the needs of the organisation	**3.1 To reflect organisational resources** Limited budget (#32)	**3.1 To reflect organisational resources** To provide additional time to cover materials while minimizing intervention costs (#14)	**12**

				Development of alternative production alternatives (avoid reliance on paper/printing resources) so this is not a restriction on new groups in some locations (#36) Facilitators did not feel well supported by the bipolar service and felt burdened with administrative tasks such as photocopying (#6) **3.2 To reflect existing infrastructure of care** To maintain the focus of the programme on brief, bridging support with recovery following a mental health crisis (rather than long support (#21) To support safe working and integration with participating NHS mental health services (#21) Provide an opportunity for the PSTs to become acclimated to MHICM work, forge relationships with staff, and meet the team's patients (#5) **3.3 To meet policy and legislation requirements** This is perhaps indicative of the way in which community based mental health services must fit within specific programme guidelines for funding purposes (#13)	
			3.2 To reflect existing infrastructure of care Limited mental health system which existed was inadequate to deal with the significant psychiatric and psychological problems being presented (#36) Because there is not an established protocol for using peer specialists as Group Lifestyle Balance facilitators; only for mental health clinicians (#25) **3.3 To meet policy and legislation requirements** Legal obligation (#12) A policy and research structure of Connecticut Department of Health and Addiction Services (#35) **3.4 To meet technological requirements** Recommended by the technology platform company (Wellframe) (#11)		
4	**To maximise role clarity**	To provide PSWs with a clear outline of their role	**4.1 To increase role clarity** Could provide an important structural role for peer providers (#30) To reduce the negative aspects of liminality (#34)	**4.1 To increase role clarity** To recognise the demands of the role and support integration with Crisis Resolution Teams (#21) To ensure PSWs distinct role is retained and supported (#21)	**7**

				Increased clarity about these responsibilities has been welcomed by both peer and Mental Health Intensive Case Management (MHICM) staff (#5) Supervision would focus on helping Peer Support Specialists better understand specific patients, plan future contacts with patients and meet all the MHIM responsibilities (#5) **4.2 To better use lived experience in PSW role** Health Care Assistants encouraged to be open with clients about their own experiences of mental health services and to use this experience to advocate for service changes on behalf of their clients where they perceived team practices that might be unhelpful to engagement (#7) Maximise PSWs opportunities to learn from and support each other (#21) **4.3 To increase PSW motivation and work skills** PSWs lack of willingness to work (#23) Not qualified and no prior work experience to support patients (#23)	
5	**To address socio-economic issues**	The social-economic issues of service users and PSWs	**5.1 To address socio-economic issues of service users** To address the high rates of poverty and social disadvantage in this population (#10) Low income (#32) Patients predominantly unemployed/isolated (#32)	**5.1 To address socio-economic issues of service user**s To navigate low income, and co-occurring physical health/mobility problems (#25) **5.2 Socio-economic issues of PSWs** Peer-reported insufficient money and non-parity with clinicians (#23)	**4**

Online Supplement 5

Quality rating of forms using CASP assessment

#	CASP Form	1	2	3	4	5a	5b	6a	6b	7	8	9	10	11	12	%	Quality rating
1	Qualitative	Yes	Yes	Yes	Yes	No	n/a	No	n/a	?	No	Yes	Yes	n/a	n/a	60	Good
2	Cohort	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	?	Yes	No	Yes	Yes	67	Good
3	Cohort	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	?	Yes	No	Yes	Yes	67	Good
4	Cohort	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	No	Yes	Yes	75	Good
5	RCT	Yes	?	No	?	?	n/a	?	n/a	?	?	?	?	?	n/a	10	Poor
6	Qualitative	Yes	Yes	Yes	No	Yes	n/a	No	n/a	Yes	No	Yes	Yes	n/a	n/a	70	Good
7	RCT	Yes	?	Yes	Yes	Yes	n/a	Yes	n/a	Yes	Yes	No	No	?	n/a	60	Good
8	RCT	Yes	Yes	Yes	Yes	Yes	n/a	Yes	n/a	Yes	Yes	No	Yes	?	n/a	80	Good
9	RCT	Yes	?	Yes	Yes	Yes	n/a	Yes	n/a	Yes	Yes	No	Yes	?	n/a	70	Good
10	RCT	Yes	Yes	Yes	Yes	Yes	n/a	Yes	n/a	Yes	Yes	No	Yes	?	n/a	80	Good
11	Cohort	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	No	No	Yes	Yes	67	Good
12	Qualitative	Yes	Yes	Yes	No	Yes	n/a	No	n/a	?	No	Yes	Yes	n/a	n/a	60	Good
13	Qualitative	Yes	Yes	Yes	Yes	Yes	n/a	No	n/a	Yes	No	Yes	Yes	n/a	n/a	80	Good
14	RCT	Yes	?	Yes	No	Yes	n/a	Yes	n/a	Yes	Yes	No	Yes	Yes	n/a	70	Good
15	Qualitative	Yes	Yes	Yes	Yes	Yes	n/a	No	n/a	Yes	No	Yes	Yes	n/a	n/a	80	Good
16	RCT	Yes	No	Yes	No	No	n/a	Yes	n/a	Yes	Yes	No	No	?	n/a	40	Poor
17	Case control	Yes	No	Yes	?	?	n/a	Yes	No	Yes	Yes	No	No	?	n/a	42	Poor
18	Cohort	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	No	No	Yes	Yes	58	Fair
19	Cohort	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No	?	Yes	42	Poor
20	RCT	Yes	Yes	Yes	Yes	No	n/a	Yes	n/a	Yes	Yes	No	Yes	?	n/a	70	Good
21	Qualitative	Yes	Yes	Yes	Yes	Yes	n/a	Yes	n/a	Yes	Yes	Yes	Yes	n/a	n/a	100	Good
22	Qualitative	Yes	Yes	Yes	Yes	No	n/a	No	n/a	?	No	Yes	Yes	n/a	n/a	60	Good
23	Qualitative	Yes	Yes	Yes	Yes	Yes	n/a	Yes	n/a	?	No	Yes	Yes	n/a	n/a	80	Good
24	Cohort	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	67	Good
25	Qualitative	Yes	Yes	Yes	Yes	Yes	n/a	No	n/a	Yes	No	Yes	Yes	n/a	n/a	80	Good
26	Cohort	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	No	No	Yes	Yes	58	Fair
27	Case control	Yes	No	No	No	No	n/a	Yes	No	Yes	No	No	No	Yes	n/a	33	Poor
28	Cohort	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	75	Good
29	RCT	Yes	No	?	No	No	n/a	Yes	n/a	Yes	Yes	No	Yes	Yes	n/a	50	Fair
30	Case control	Yes	No	No	No	Yes	n/a	Yes	No	Yes	Yes	No	No	Yes	n/a	50	Fair
31	RCT	Yes	Yes	Yes	?	No	n/a	Yes	n/a	Yes	Yes	Yes	Yes	Yes	n/a	80	Good
32	Cohort	Yes	No	Yes	No	No	No	Yes	No	No	No	Yes	No	Yes	Yes	42	Poor
33	Qualitative	Yes	Yes	Yes	Yes	Yes	n/a	Yes	n/a	Yes	Yes	Yes	Yes	n/a	n/a	100	Good
34	Qualitative	Yes	Yes	Yes	Yes	Yes	n/a	No	n/a	Yes	Yes	Yes	Yes	n/a	n/a	90	Good
35	RCT	Yes	Yes	Yes	No	No	n/a	Yes	n/a	Yes	Yes	No	Yes	?	n/a	60	Good
36	Qualitative	Yes	Yes	Yes	Yes	No	n/a	No	n/a	?	No	Yes	Yes	n/a	n/a	60	Good

37	Cohort	Yes	Yes	Yes	?	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	58	Fair
38	RCT	Yes	Yes	Yes	Yes	?	n/a	Yes	n/a	Yes	Yes	No	Yes	?	n/a	70	Good
39	RCT	Yes	No	Yes	Yes	Yes	n/a	Yes	n/a	Yes	Yes	No	No	?	n/a	60	Good

? = not rateable, N/A = not applicable