

A gardening and woodwork group in mental health: a step towards recovery

Róisín Sinnott and Maria Rowlls

Adult Mental Health Service, South East Community Healthcare, Wexford, Ireland

Abstract

Purpose – This paper aims to evaluate the impact of an eight-week gardening and woodwork group programme on individuals' recovery goals in an adult community mental health setting.

Design/methodology/approach – Seven individuals participated in the research. The programme was designed and facilitated by two occupational therapists (the authors) and one horticulture and trade skills facilitator. The goal attainment scale was used as a quantitative outcome measure as it allowed individuals to collaboratively set occupation-focused recovery-oriented goals. Due to the small sample size, descriptive statistics were used to analyse this data. Qualitative feedback was gathered through participant feedback forms when the programme ended.

Findings – Quantitative findings indicate positive results for individuals' progression towards their recovery goals, with six out of seven participants either achieving or exceeding their goals. One person who attended only one out of eight groups had "worse than expected" goal achievement.

Originality/value – While there is evidence for the use of gardening and woodwork group therapy in mental health settings, most studies have relied on symptom-focused questionnaires or qualitative results rather than quantifiable recovery-oriented measures (Cipriani *et al.*, 2017; Kamioka *et al.*, 2014; Parkinson *et al.*, 2011). It is hoped that this paper begins to bridge that gap and also outlines how recovery principles, gardening and woodwork can be incorporated into occupational therapy group programmes. This is of particular merit during the COVID-19 pandemic, which has led to a greater need for group intervention in outdoor settings, where social distancing can be comfortably facilitated.

Keywords Mental health, Recovery, Gardening, Goal attainment scale, Woodwork

Paper type Research paper

Introduction

Recovery-oriented policy and legislation came into effect in Ireland in 2006 and has since formed the cornerstone of Irish mental health policy (O'Keeffe *et al.*, 2018). Ireland's current mental health policy "Sharing the vision: a mental health policy for everyone" defines recovery as "people experiencing and living with mental health issues while pursuing the personal goals they want to achieve in life, regardless of the presence or severity of those mental health difficulties" (Dept. of Health, 2020).

The similarities between the philosophy of occupational therapy and that of recovery are easily noted with shared principles of client-centredness, personal autonomy, empowerment and personal meaning (Castaneda *et al.*, 2013). Occupational therapy also maintains the view of health as engagement in all activities of life that are meaningful to the individual, rather than an absence of illness or disability (Merryman and Riegel, 2007). Occupational therapy group theory and the importance placed on group cohesion also align with recovery principles such as peer support.

Occupational therapy group intervention in mental health is arguably the earliest intervention in the history of the profession. Surveys of occupational therapy provision in mental

health have indicated that "activity" groups are among the most common group modality used (Higgins *et al.*, 2014; Duncombe and Howe, 1985), with activities ranging from exercise to cooking and arts and crafts. There is a growing body of international evidence for the use of gardening group work as a therapeutic medium, with numerous health benefits demonstrated, such as improvements in self-confidence, self-esteem, sense of accomplishment and productivity (Kam and Siu, 2010; Wiesinger *et al.*, 2006). This growing body of evidence combined with an identified need and interest among services users led to the selection of gardening as a suitable therapeutic activity. Additionally, woodwork has been shown to increase socialisation and lead to goal attainment in a sample of men in a community rehabilitation setting (Fulton *et al.*, 2016).

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Outcome measures

A review of the literature shows a wide range of outcome measures being used to evaluate the impact of occupational therapy groups in mental health services (Bullock and Bannigan, 2011). Most studies investigating the evidence for gardening and woodwork group therapy in mental health settings have relied on symptom-focused checklists and questionnaires or qualitative methodologies rather than quantifiable occupation-focused and recovery-oriented measures (Cipriani *et al.*, 2017; Kamioka *et al.*, 2014; Parkinson *et al.*, 2011). These evaluation approaches tend to differ from the individualised goals advocated within occupational therapy and the recovery model. It is also the researchers' experience that such evaluation tools do not provide meaningful data for the evaluation and development of occupational therapy group programmes in practice.

When selecting an outcome measure to use with a group, the importance of maintaining an individualised recovery-focused approach is paramount. Also, as occupational therapists, the necessity of maintaining an occupation focus is central to a group protocol. It has been argued that administering standardised outcome measures can “strip the person's experience of all meaning and reduce it to predetermined categories”, with “only a limited capacity to capture the richness of people's recovery journeys or provide information that can usefully inform care” (Lakeman, 2004). Difficulty aligning occupational therapy principles and client-centeredness with the predominant symptom-focused or observational outcome measures may be one contributing factor to occupational therapists relying on qualitative feedback or individual testimony rather than group measures. One survey completed by 144 occupational therapists working in adult community mental health indicated that 41% did not measure the outcomes of their interventions (Birken *et al.*, 2017).

The goal attainment scale (GAS) is one tool that has potential to record goals and measure outcomes in line with the recovery model as it allows each client to design their own outcome measure which can then be scored in a standardised manner to allow statistical analysis (Turner-Stokes, 2009). Goals are collaboratively defined between the client and clinician in a “SMART” format (i.e. goals are Specific, Measurable, Achievable, Relevant and Time-Specific). GAS is recommended for use when standardised assessment does not exist to measure the construct (Krasny-Pacini *et al.*, 2016), so it is suited for use when individuals are identifying their own personal and varied recovery goals and can evaluate subjective constructs such as occupational engagement in a quantitative and comparable manner.

The purpose of this study was to develop and conduct an occupation-focused and recovery-oriented evaluation of a therapeutic gardening and woodwork programme for adult community mental health service users. This study aimed to answer the following research questions:

- RQ1. Was there any change in participants' GAS attainment levels after attending the gardening and woodwork programme?
- RQ2. Did participants attribute changes in their GAS attainment levels to the gardening and woodwork programme or to other factors?

Methodology

Research design and ethical approval

This study used a mixed methods approach to answer the above research questions. Ethical approval was granted by The Research Ethics Committee, Health Service Executive (HSE), South East.

Recruitment/participants

Occupational therapy service users were surveyed for the following criteria: an interest in gardening and/or identified recovery goals which could be addressed by attending a gardening group. They were then invited to attend the gardening group as part of their occupational therapy intervention plan. Service users were provided with the participant information leaflet in 1:1 occupational therapy sessions, and researchers (the occupational therapists) began collecting data on receipt of informed consent. If service users gave informed consent for their data to be used in this research, they were considered participants of the study. If they did not give consent for their data to be used, they continued to attend the group as normal and their evaluations were only used to inform their treatment plan. There were no exclusion criteria.

Intervention

This was the first time a gardening group was offered by the occupational therapy department in this setting, having been identified as a suitable therapeutic programme based on service user need. A HSE funding application was approved for employment of a horticulture and trade skills (HTS) facilitator who was already employed on a sessional basis in other parts of the mental health service. The group was initially scheduled to commence in March 2020; however, the onset and increase of COVID-19 cases in Ireland at that time led to the group's postponement. Instead, it took place outdoors on the grounds of the Community Mental Health Centre during July and August 2020. It was run in line with national COVID-19 guidance, national social distancing recommendations and local infection control policies. Adaptations made in line with these procedures included maintaining two metres social distancing; using face coverings where required, i.e. when maintaining two metres social distance was not feasible for short periods; providing each participant with their own equipment (e.g. gardening gloves); provision of hand sanitiser and handwashing facilities; equipment sanitising wipes; and face masks during each group. All of these procedures were successfully applied to the group and reinforced by the occupational therapist present. Seats were arranged in a circle with minimum of two metres distance between them before group commenced.

Initially, the group was planned with primarily a gardening focus; however, completion of the pre-evaluation GAS revealed a wider interest than this. The HTS facilitator was suitably skilled to meet these needs, and the programme evolved into a gardening and woodwork group. An eight-week gardening and woodwork group was facilitated by one of two occupational therapists and the HTS facilitator. Seven participants attended 90-min woodwork and gardening sessions. Three participants attended all eight sessions, one attended seven sessions and three service users attended only one of the eight sessions

offered. Reasons given for poor attendance include physical health changes and conflicting schedules/appointments. Woodwork and gardening projects were decided informally by the group as the programme progressed. Projects included planting and maintaining flowerbeds and fruit trees, building birdboxes and an Adirondack chair and footstool. Projects and tasks were paced and graded to match individual goals and physical and cognitive ability. Tea and coffee were provided at the beginning and end of the group in order to facilitate informal group discussion and promote social connection. Sessions typically followed the format below:

- welcome, informal chat, tea/coffee provided;
- planning the group tasks for the day including developing visual plans, division of roles, instruction in use of tools;
- undertaking main task (e.g. product construction/painting and plant maintenance/weeding); and
- closing the group, tea/coffee provided, reflection on the day's activity, discussion and selection of tasks for the following group session.

Measures/data collection

Demographic data (age, gender and diagnoses) were collected from service users' files with informed written consent.

The GAS was chosen as the primary data collection method. The GAS is a five-point scale on which the expected successful outcome (SMART goal) is scored as 0. Better than expected is scored as +1, and the most favourable outcome is scored as +2, while less than expected and least favourable outcomes are scored as -1 and -2, respectively (Kiresuk *et al.*, 2014). Service users' baselines were recorded as -2 on the scale. Some studies have expressed concern that recording participants' baselines as -2 means that deterioration or regression cannot be recorded (Ottenbacher and Cusick, 1990); however, this was not a concern in this study as participants generally equated scores of -2 (least favourable outcome) with non-attendance (Turner-Stokes, 2009). Setting a baseline of -2 also meant that progress without attaining the goal could be recorded, i.e. recording a score of -1 would indicate partial progress towards a goal. This allowed improvement to be measured in the absence of complete goal attainment, which is more in line with the strengths-based approach of both occupational therapy and the recovery model (Krasny-Pacini *et al.*, 2016).

The pre-evaluation GAS was completed with each service user in a 1:1 session with their occupational therapist in the fortnight preceding the group. The occupational therapists supported each service user to identify and rate meaningful goals in a "SMART" format and when necessary completed the GAS over one or more sessions in order to ensure that each scale correctly reflected service users' goals. See Table 1 for participants' GASs. Service users were also asked to rate the importance and difficulty of each goal. This weighting allowed the calculation of the GAS T-score, which aligns/compares results against a normal distribution, providing a "quality check" of GAS scoring (Turner-Stokes, 2009). Demonstrating a mean T-score of around 50 with a standard deviation of 10 indicates that goals have been accurately set; a T-score of more than 50 indicates that goals may have been easily achievable,

while a T-score of less than 50 indicates that goals may have been overambitious (Turner-Stokes, 2009).

The post-evaluation GAS was completed in a 1:1 session and included minimal qualitative data. A brief feedback form (see below) was also used in order to capture service users' feedback on what other factors they feel might have influenced their GAS outcomes, and if there was any aspect of the group that they would like to change or adapt in future (as is normal practice within this particular service within this particular service):

- Q1. Do you feel that the gardening and woodwork group influenced your GAS outcomes? How?
- Q2. Have there been any other changes in your life over the last 10 weeks which might have influenced your GAS outcomes?
- Q3. Is there any feedback or advice that you would like to give us about the gardening and woodwork group?
- Q4. Would you be interested in attending a future gardening or woodwork group?

In order to maintain inter-rater reliability, researchers came together to review, independently rate and compare all pre-evaluation and post-evaluation goal setting forms.

Data analysis

Descriptive statistics were used to analyse quantitative data. The GAS allows parametric analysis, but this option was not pursued, as it would have resulted in a low level of statistical analysis and transferability due to the small number of participants.

Basic content analysis of the participant feedback forms was used to analyse the qualitative data received in order to determine if service users attributed this change to the gardening and woodwork group or to other interventions/changes in their lives.

Results

Nine service users attended the programme, with seven consenting to participate in the research (four men and three women). Ages ranged from 36 to 63 years. As this research was carried out in their usual treatment setting, all service users had opportunities to avail of other occupational therapy group programmes concurrently with this programme. Six out of seven participants attended one or more other occupational therapy co-facilitated groups including yoga, exercise and/or music exploration while this research was being conducted.

Goal attainment scale

The first research question asked was whether there was any change in participants' GAS attainment levels after attending the programme. The results conclude that there was positive change: 15 goals were set in total, 12 of which were achieved (i.e. scored 0 or above at post-evaluation). At baseline, the mean GAS attainment level for the group was -2, while at post-evaluation the mean group GAS attainment level rose to 0.4. If broken into gender categories, both female and male

Table 1 Participants' GASs

Participant	Goal number and type	BASELINE: Much less/worse than expected (–2)	Somewhat less/worse than expected (–1)	SMART GOAL: As expected (0)	Somewhat better than anticipated (1)	Much better than anticipated (2)
A	1. Skill Goal	I will not get to apply my current knowledge or learn anything new (e.g. through not attending)	I will get to apply my current knowledge but not learn anything new (achieved)	I will add to my existing horticulture knowledge through learning or applying one new gardening technique or approach	I will add to my existing horticulture knowledge through learning or applying two new gardening techniques or approaches	I will add to my existing horticulture knowledge through learning or applying three or more new gardening techniques or approaches
	2. End-product goal	I will not participate in gardening/woodwork activities	I will not complete products but will participate in gardening/woodwork activities	I will feel a sense of mastery through completing gardening/woodwork products	I will feel a sense of mastery through completing gardening/woodwork products on at least three weeks of the gardening group	As (+1), and I will complete a permanent product/end result for display in the mental health centre or at home (achieved)
	3. Outdoor goal	I will not attend the gardening group	I will feel well by engaging in the gardening group which will take place indoors for the majority of the time	I will feel well by engaging in the gardening group which will take place outdoors for the majority of the time (achieved)	As (0), and I will feel well by engaging in further outdoor activity	As (+1), and I will have specific plans to continue engaging in further outdoor activity
B	1. Skill goal	I will not attend the gardening group	I will not learn a new skill but will refresh existing knowledge	I will learn a new skill through hands-on experience and practice	I will learn more than one new skill through hands-on experience and practice	I will learn more than one new skill through hands-on experience and practice and will apply this skill to my home life (achieved)
	2. Structure/routine goal	I will not attend any gardening groups	I will attend less than six groups	I will increase my routine and further manage my mental health by attending 6 or more gardening groups (achieved)	I will attend all eight gardening groups	I will attend all eight gardening groups and a similar ongoing community group (e.g. Men's Shed)
C	1. Structure/routine goal	I will attend 1 or less gardening groups	I will attend at least two gardening groups	I will increase my routine by travelling away from home in order to attend the gardening group at least four times	I will attend five or more gardening groups (achieved)	I will attend five or more gardening groups and will go on to meet other members outside of the group or join an ongoing community group
	2. Social goal	I will not attend any gardening groups	I will not enjoy spending time with and talking to other group members and/or will not engage in group discussions/conversations during the group	I will enjoy spending time with and talking to other group members and will engage in group discussions/conversations during the group	I will enjoy spending time with and talking to other group members, and I will engage in group and 1:1 discussions/conversations during the group (achieved)	I will socialise with group members outside of the group

(continued)

Table 1

Participant	Goal number and type	BASELINE: Much less/ worse than expected (–2)	Somewhat less/worse than expected (–1)	SMART GOAL: As expected (0)	Somewhat better than anticipated (1)	Much better than anticipated (2)
D	1. Skill goal	I will not learn a new skill or have a completed product at the end of the programme	I will learn a new skill or technique but will not have a completed product at the end of the programme	I will learn a new skill or technique with a completed product at the end of the programme	I will learn more than one new skill or technique with a completed product at the end of the programme	I will learn more than one new skill or technique with more than one completed product at the end of the programme (achieved)
	2. Structure/ routine goal	I will not attend any gardening groups	I will support my routine and mental health by engaging in less than six gardening groups	I will support my routine and mental health by engaging in six gardening groups	I will support my routine and mental health by engaging in more than six gardening groups (achieved)	I will support my routine and mental health by engaging in more than six gardening groups and similar activities outside the group
E	1. Skill goal	I will not attend group or not take part in group activity	I will take part in new group activity during gardening group but will not increase my self-confidence	I will increase my self-confidence by taking part in new group activity via gardening group (achieved)	As (0), AND I will have completed a gardening or woodwork task and feel proud of the completed work, AND/OR I will have contributed to and enjoyed discussing topics during group	As (+1), AND I will have completed two or more gardening or woodwork tasks and feel proud of the completed works, AND/OR I will have contributed to and enjoyed discussion during group, and started conversations by introducing new topics, AND/OR I will have identified and feel ready to join another community group of interest
	2. Social goal	I will not attend the gardening group	I will attend gardening group but not interact with others	I will reduce my feelings of isolation by interacting with others during gardening group (achieved)	As (0), AND I will have increased interactions outside of the group, AND/OR I will make one contact from the group whom I speak with outside of the group	As (+1), AND I will have plans to continue interactions weekly
F	1. Structure/ routine goal	I will support my routine and mental health by engaging in the gardening group 0-2 times (ACHIEVED)	I will support my routine and mental health by engaging in the gardening group two–four times	I will support my routine and mental health by engaging in the gardening group (a new group activity) four times	I will support my routine and mental health by engaging in the gardening group four–six times	I will support my routine and mental health by engaging in the gardening group more than six times
	2. End-product goal	I will not engage in the gardening group	I will support my mental health and productivity by engaging but not completing one woodwork or gardening product (achieved)	I will support my mental health and productivity by completing one woodwork or gardening product	I will support my mental health and productivity by completing >3 woodwork or gardening products	I will support my mental health and productivity by completing >3 woodwork or gardening products
G	1. Skill goal	I will not attend the gardening group	I will not learn or apply any new gardening skills	I will learn and apply one new gardening-related skill	I will learn and apply two new gardening-related skills (achieved)	I will learn and apply three or more new gardening-related skills
	2. Social goal	I will not attend the gardening group	I will meet new people but will not feel comfortable talking to them in the group	I will meet new people and feel comfortable talking to them in the group (achieved)	As (0), AND I will feel comfortable talking with them inside and outside of group	As (+1), AND I will arrange to meet at least one group member outside the group

service users obtained positive results, with a female mean GAS attainment level of 0.3 and a male mean of 0.5.

Two individuals did not achieve one or more goals. One of these individuals attended the programme only once and achieved neither of two goals. The other individual attended all eight groups and achieved two of three goals with a mean GAS attainment level at post-evaluation of 0.3. See Table 2 for participant demographics and summary of results per participant.

Table 2 also demonstrates a mean GAS T-score of 52.9, indicating that participants' goals were set in an unbiased fashion.

Many common goals were seen amongst individuals, e.g. structure/routine goals, skill goals and end-product goals (Table 3). Comparison of the mean attainment levels for these common goals showed positive achievement, with skill acquisition goals being most successfully achieved with a mean goal attainment level of +0.8 post intervention.

Qualitative data

The second research question asked whether participants attributed the changes in their GAS attainment levels to the woodwork and gardening group or to other factors. Basic content analysis indicated that all participants felt that their outcomes/achievements were influenced by the gardening group.

Three service users identified other changes in their lives which may also have influenced their outcomes. These changes included: one service user's usual community group activity being unavailable due to COVID-19; another service user reported increased experience of anxiety from week six onwards, the cause for which was unknown; and one service user chose not to disclose the changes they had identified in their life.

All service users expressed interest in attending gardening and woodwork groups in the future.

Discussion

While limited by the small sample size, the findings of this study support our hypothesis that engagement in a gardening and woodwork programme facilitates the achievement of individual recovery goals.

Although evidence exists for the use of gardening and woodwork group therapy in mental health settings, most studies have relied on symptom-focused questionnaires or qualitative results rather than quantifiable, individualised recovery-oriented measures (Cipriani *et al.*, 2017; Kamioka *et al.*, 2014; Parkinson *et al.*, 2011). Obviously this finding is open to bias particularly as participants provided quantitative and qualitative data directly to the occupational therapists/researchers. In addition, six participants also attended other

Table 2 Participants' demographics and results per participant

Participant	Diagnosis	Gender	No. of groups attended (of eight max)	No. of goals	Mean goal attainment level post-intervention	GAS T-score
A	Schizophrenia, generalised anxiety disorder	F	8	3	0.3	54.6
B	Alcohol dependency syndrome	M	7	2	1	50
C	Paranoid schizophrenia	M	8	2	1	62.4
D	Schizoaffective disorder	M	8	2	1.5	68.6
E	Emotionally unstable personality disorder	F	1	2	0	50
F	Paranoid schizophrenia	M	1	2	-1.5	30
G	Schizophrenia	F	1	2	0.5	54.9
Group mean			4.8	2.1	0.4	52.9

Table 3 Participants' GAS attainment levels across goal types

Participant	No. of groups attended (of 8 max)	Skill goal attainment level	Structure/routine goal attainment level	Social goal attainment level	End-product goal attainment level	Outdoor goal attainment level	Average goal attainment levels
A	8	-1			2	0	0.3
B	7	2	0				1
C	8		1	1			1
D	8	2	1				1.5
E	1	0		0			0
F	1		-2		-1		-1.5
G	1	1		0			0.5
Average attainment per goal type		0.8	0	0.3	0.5	0	0.4

occupational therapy groups during this time which would likely have also improved participants' goal attainment in areas such as structure/routine and socialisation. Also, while the GAS is not an occupational therapy specific assessment, it is well documented that the act of goal setting is intrinsic to the occupational therapy process and can be an intervention in itself (Ottenbacher and Cusick, 1990; Locke and Latham, 2002). This focus on collaborative goal setting may have also been a factor which supported goal achievement. However as Table 3 shows, service users achieved most positive results with skill and end-product goals. As these skills and products were specific to the gardening and woodwork programme (e.g. learning and applying one new woodwork skill), it is reasonable to attribute the achievement of these goals directly to this programme rather than any other intervention or life event.

Three goals were not achieved, although partial achievement (attainment level of –1) was made in two out of three of these cases. One participant who attended only one of the eight groups did not achieve their structure/routine goal and only partially achieved their product construction goal. The other service user who only partially achieved their skill goal was very experienced in gardening and woodwork at baseline, having studied and worked in those skill areas previously.

This result and interpretation is similar to that of Fulton *et al.* (2016), who correlated worse than expected outcomes with low attendance and participation levels.

It is worth noting that both male and female service users achieved positive results, as woodwork in particular has commonly been perceived as a male activity and consequently been offered to males only in various settings (Fulton *et al.*, 2016).

The findings from qualitative feedback (although exposed to the same bias) also support the hypothesis. For example, three service users identified changes in their life over the duration of the programme which could have influenced the outcome of their goals. All three identified negative or undesirable changes (e.g. loss of a Men's Shed due to COVID-19 restrictions), yet all three demonstrated some level of goal achievement despite these changes. It is therefore reasonable to propose that service users' goals were achieved in spite of these changes, rather than because of them. This finding, coupled with participants' unanimous interest in engaging in a similar group in future, supports the use of a gardening and woodwork group programme in adult community mental health settings.

Limitations

Neither of the researchers had received training in the use of the GAS and had limited experience of using it prior to this study. This inexperience likely impacted on the administration of the GAS.

Both researchers were practicing clinicians. This dual researcher and clinician role may have contributed towards a positive bias when gathering qualitative data.

The small sample size and lack of control group are also easily identifiable limitations to this study.

Conclusion

This study aimed to evaluate the effectiveness of a woodwork and gardening group programme. The GAS allowed researchers to evaluate the efficacy of this group intervention in

a recovery-oriented manner which was of inherent therapeutic value to participants and also remained in-line with occupational therapy principles. Qualitative and quantitative results indicate that the programme enabled participants' achievement of individual recovery goals and indicate that woodwork and gardening groups should be considered when developing services for community mental health service users.

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Further reading

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Corresponding author

Róisín Sinnott can be contacted at: rsinnott@tcd.ie