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The impact of the COVID-19 pandemic on the wellbeing of Irish Men's Shed members

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Summary

COVID-19 disproportionately affects males especially those who are older and more socio-economically disadvantaged. This study assessed wellbeing outcomes among men's shed members (Shedders) in Ireland at baseline (T1), 3 (T2), 6 (T3) and 12 months (T4) in response to a 10-week health promotion program 'Sheds for Life' (SFL). Two cohorts participated in SFL commencing in March and September 2019. This study compares the T3 findings from one cohort carried out during the COVID-19 pandemic [COVID cohort ($n = 185$)] with T3 findings from a comparator cohort [pre-COVID cohort ($n = 195$)], completed pre-COVID-19. Questionnaires assessing wellbeing [life satisfaction, mental health, loneliness, physical activity (PA), self-rated health and other lifestyle measures] were analyzed in both cohorts T1, T2 and T3. Self-rated Health and life satisfaction decreased in the COVID cohort at T3 ($p < 0.001$), while loneliness scores increased ($p < 0.0005$). Higher loneliness scores were correlated with lower health ratings, life satisfaction and PA during COVID-19 ($p < 0.001$). Days PA decreased in the COVID cluster at T3 from T2 ($p < 0.01$) with those in urban areas reporting lower activity levels than rural areas ($p < 0.05$). Those sufficiently active at baseline managed to maintain PA during COVID-19 while those not meeting guidelines were more likely to report decreases ($p < 0.001$). Shedders experiencing COVID-19 restrictions are at an increased risk of poorer wellbeing and increased levels of loneliness. Support and guidance are needed to safely encourage this cohort back into men's sheds, settings that protect against loneliness and positively promote health and wellbeing.

Lay summary

The COVID-19 pandemic will have wide-reaching implications on wellbeing, particularly on those who are older and more vulnerable. Evidence also suggests that COVID-19 disproportionately affects males. This study aimed to understand the impact that COVID-19 has had on men in the setting of Men's Sheds in Ireland. Two cohorts of men who were participating in a 10-week health and wellbeing program (Sheds for Life) at different stages were followed over time. At 6 months follow-up the first Cohort had not experienced COVID-19 whereas the second cohort was actively experiencing the COVID-19 pandemic. We measured wellbeing using questionnaires, comparing both groups of men for differences. We found that the men who were experiencing COVID-19 had lower self-rated health, physical activity and life satisfaction as well as higher rates of loneliness, with those who were more lonely reporting lower wellbeing scores. We also found that men in rural areas were more physically active during COVID-19 and that those were not active were more likely to become more inactive

during COVID-19. This study suggests that support and guidance is needed to safely encourage this cohort back into Men's Sheds, settings that protect against loneliness and positively promote health and wellbeing.

INTRODUCTION

Men and COVID-19

In the vast majority of countries where data are available, men are consistently dying from COVID-19 at a higher rate than women, despite a similar number of confirmed cases in each sex (Global Health 50/50, 2020). This reflects a complex mix of sex and gender differences. The higher prevalence of pre-existing comorbidities in men than in women, including cardiovascular disease, diabetes, obesity and hypertension, has been highlighted as a critical factor in men's greater susceptibility to more severe and fatal outcomes from COVID-19 (WHO, 2018; Smith et al., 2020). Gender differences in health behaviors (smoking and drinking), delayed help-seeking and lower adherence to pandemic-specific containment measures (wearing of face masks, hand-washing) have also been highlighted as contributory factors to men's greater vulnerability to the disease (Baker et al., 2020). It is also becoming increasingly apparent that the pandemic disproportionately affects more socially and economically disadvantaged population groups in general, and males in particular (Wang et al., 2020). This reflects a more fundamental pattern of health inequities associated with a steeper social gradient in men's health, whereby more vulnerable and minority population groups of men carry a disproportionate burden of ill-health and mortality (WHO, 2018). Although the WHO has recently called on countries to incorporate a focus on gender into their COVID-19 responses (WHO, 2020), to date considerations of how gender intersects with other social determinants of health to generate health and social inequities have been largely absent from efforts at a policy or practice level to respond to the pandemic (Smith et al., 2020).

Turning the spotlight on the wider ramifications of COVID-19

Whilst most of the attention in the early months of COVID-19 has understandably been on public health measures to respond to and contain the disease, the focus is now beginning to broaden to the wider and longer-term ramifications, such as increased unemployment, economic burden and financial losses, delayed help-seeking for other health conditions (Smith et al., 2020). Mass fear of COVID-19, termed 'coronaphobia' (Asmundson and Taylor, 2020), has generated much uncertainty and anxiety across the different strata of society. There is now increasing concern about the wider psychosocial impact of COVID-19, particularly on more vulnerable groups such as older people and more marginalized communities who are likely to be disproportionately affected by this pandemic and need special attention (Dubey et al., 2020; Talevi et al., 2020). Hamm et al. (Hamm et al., 2020) highlighted that whilst most older adults with pre-existing depression showed resilience in the early months of the COVID-19 pandemic, many also expressed concerns about the future, thus highlighting the need for increased supports for this cohort to maintain mental health and quality of life as the pandemic continues.

The COVID-19 pandemic has been identified as a possible trigger for increases in loneliness and social isolation particularly among older people due to the restrictions on movement and social interactions that many countries have put in place (Noone et al., 2020). Loneliness and social isolation are consistently identified as risk factors for poor mental and physical health in older people—an age cohort more likely to experience many of the risk factors that can cause or exacerbate social isolation or loneliness, such as living alone, the loss of family or friends, chronic illness and sensory impairments (NASEM, 2020). The implications of loneliness and social isolation include disruption of social interactions and routines, reduced meaningful activity, reduced social and emotional support, potential for grief, loss, and trauma responses, limited access to resources and reduced physicality (Campbell, 2020). Indeed, a substantial body of evidence demonstrates that social isolation presents a major risk for premature mortality, and is a particular cause for concern among low income, underserved and vulnerable populations (NASEM, 2020).

The restrictions during COVID-19 have also led to concerns around the impact on PA particularly among vulnerable groups. Indeed, evidence suggests that PA in older adults has significantly decreased during COVID-19, with concerns that this may lead to increased risk of decline and disability (Roschel et al., 2020;

Yamada *et al.*, 2020). Emerging evidence also suggests that the decline may be more prevalent in existing 'at risk' groups, particularly those not meeting current PA guidelines. These older adults are at an increased risk of serious complications from COVID-19 and PA can help to defend against COVID-19 symptoms by improving immune system responses to viral respiratory infections as well as facilitating social engagement, which is conducive to positive wellbeing, meaning that alternative solutions for exercise and social engagement are needed (Son *et al.*, 2020).

Tracking the impact of COVID-19 on 'hard to reach' groups: a case study from Ireland

This research emanated from a wider, ongoing study evaluating the implementation and scalability of a community-based men's health and wellbeing program 'Sheds for Life' (SFL) in the men's sheds ('Sheds') setting. The Men's Shed movement was first founded in Australia in the 1980s and has since expanded to other countries, first arriving in Ireland in 2011 and growing exponentially with over 450 sheds now on the island and up to 10 000 members. Sheds are community-based, independent and self-autonomous, engaging in a range of activities, such as woodwork, gardening and music, that foster opportunities to participate in meaningful activities which encourage skill sharing, informal learning, comradery, sense of purpose and belonging all facilitated by a socially supportive and acceptable masculine environment (Wilson and Cordier, 2013; Kelly *et al.*, 2019; Bergin and Richardson, 2020). This salutogenic environment fostered by Sheds has led to the recognition of their inherent health-promoting nature (Wilson and Cordier, 2013; Lefkowich and Richardson, 2018), poising Sheds as alternative spaces to promote health (Nurmi *et al.*, 2018; Kelly *et al.*, 2019; Taylor *et al.*, 2018) and encompassing many of the principles for effectively engaging men in health promotion programs (Bergin and Richardson, 2020). Sheds operate on minimal funding and are self-sustained. The Irish Men's Sheds Association (IMSA) supports the development of the network of over 450 Sheds in Ireland. Sheds typically attract more vulnerable or 'hard to reach' groups of men; i.e. men who tend to be more isolated from or reticent about accessing formal health services or social support networks due to geography, experiences of mental health issues, unemployment or changes in life course (Lefkowich and Richardson, 2018). SFL is a health promotion program based on the safe space of the Sheds setting and employs gender-sensitive strategies in a tailored, supportive, collaborative approach involving multiple stakeholders (Shedders, partner organizations, service providers, research team). The key principles underpinning SFL were informed by a previous study (Bergin and Richardson, 2020), which sought to align the ethos of Sheds with the program content and delivery. The IMSA has overseen the development of SFL which is structured as a 10-week intervention and comprises of a health check and 3 core modules of physical activity, mental wellbeing and healthy eating as well as other elective health, wellbeing and life skill components self-selected by Shedders [e.g. diabetes and cancer awareness, digital literacy, oral health promotion, suicide prevention workshop and CPR (IMSA , 2019)]. The on-going evaluation consists of a hybrid type-two effectiveness-implementation study design (Curran *et al.*, 2012), guided by implementation and evaluation frameworks (Glasgow *et al.*, 1999; Damschroder *et al.*, 2009; Proctor *et al.*, 2011; Koorts *et al.*, 2018) and employs a pragmatic, collaborative approach, which aims to enhance the implementation and sustainability of SFL. Measurements were made at baseline (T1), 3 (T2), 6 (T3) and 12 (T4) months on a range of demographic, health and social measures to assess effectiveness at the individual level with continuous assessment for wider implementation measures.

This study sought to answer the question: 'What impact has the COVID-19 pandemic had on the wellbeing of Shedders?' It did so by comparing findings from the 6-month follow-up stage carried out during the COVID-19 pandemic in one cohort with the 6-month findings from a comparator cohort, completed pre-COVID-19. The study thus provides valuable longitudinal data on the impact of COVID-19 on wellbeing in an understudied and 'hard to reach' group. The study also enhances understanding of the interactions between geographical location, living situation and loneliness during the lockdown period of COVID-19. To date, there has been a dearth of evidence on the impact of COVID-19 on specific indices of health and wellbeing specifically among more vulnerable or 'hard to reach' groups. The study therefore addresses an important gap in the COVID-19 literature by (i) focusing attention on the impact of the pandemic on a vulnerable, older cohort of males; and (ii) providing insight into the utility of a community outreach health promotion program (SFL) to ameliorate at least some of the potentially deleterious physical and mental health effects of COVID-19 on a cohort of the population considered a priority group. The latter is noteworthy in the context of increasing calls for dedicated resources that prioritize more vulnerable and high-risk communities during COVID-19 and that address the social and economic barriers to overall wellbeing that these populations face during a pandemic (Wang *et al.*, 2020).

METHODOLOGY

With due regard both to capacity and resource constraints of partner organizations to deliver SFL along with the nuances, ethos and autonomy of the Sheds environment, the SFL 10-week intervention, was implemented on a phased basis across two clusters (Pre-COVID Cohort and COVID cohort). The pre-COVID cohort had completed SFL T3 testing prior to COVID-19 restrictions. The COVID cohort was actively experiencing social restrictions due to COVID-19 at T3. These included social distancing of 2 m, staying at home as much as possible, limited communication outside of the household with groups of no more than four people meeting outdoors, wearing of face coverings, a 5-km travel limit, with older and vulnerable people recommended to cocoon by staying indoors apart from brief outdoor exercise (Government of Ireland, 2020).

Participants

Respecting the autonomous and informal environment of the Sheds is an important factor in delivering health promotion through Sheds (Lefkowich and Richardson, 2018; Bergin and Richardson, 2020). Therefore, Sheds were recruited to participate in SFL via an expression of interest process with the objective to deliver SFL in diverse settings based on Shed size and geographical location (urban/rural). Individual Shedders within Shed settings participated in SFL and the evaluation on a voluntary basis and provided informed consent. The first SFL program delivery (pre-COVID cohort) was delivered over 2 counties comprising of 12 delivery settings and individual Shedders ($n = 212$) in March to May 2019. The two counties were County Kildare, in Ireland's Mid-East region with a population of ca. 222 504, and Waterford in Ireland's South-East Region with a population of 116 176 (CSO, 2016). The second SFL program delivery (COVID cohort) was similarly delivered from September to November 2019 over two counties comprising of nine delivery settings and individual Shedders ($n = 209$). These two counties included; Co. Limerick, in Ireland's South-West region with a population of 194 899 and Co. Louth in Ireland's Mid-East Region with a population of 128 884 (CSO, 2016) (see Table 1 for geographical spread of delivery settings). The study received full ethical approval from Waterford Institute of Technology Research Ethics Committee (REF: WIT2018REC0010).

Study design and data collection

Self-reported outcomes were measured via a questionnaire that was completed by the participants one-to-one with a trained research team member. Participant demographics were recorded at baseline including date of birth, living situation, educational attainment, employment status relationship and ethnicity (Table 1). At all time-points, loneliness was measured via the UCLA three-item scale measuring three dimensions of loneliness; relational connectedness, social connectedness and self-perceived isolation (Russell, 1996). Life satisfaction was recorded using the Office of National Statistics subjective wellbeing 11-point scale (ONS, 2015). Mental wellbeing was measured using the Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS) with raw to metric score conversion where a change of 2+ is considered relevant (Stewart-Brown *et al.*, 2009). Self-rated health was measured using a single question Likert scale with high reliability among older men (Lundberg and Manderbacka, 1996). Lifestyle behaviors were also recorded [smoking (number smoked per day) and alcohol consumption (days drinking and units consumed per drinking session)]. The single-item PA measure was used to record PA levels (Milton *et al.*, 2011. The Self-Efficacy for Exercise Scale (SEE) was used to measure physical activity self-efficacy (Resnick and Jenkins, 2000). Shedders in the COVID cohort were asked during T3 under COVID-19 restrictions if they were physically active 'More than usual', 'About the same' or 'Less than usual' (see Table 2 for description of measures). Questionnaires were administered with Shedders at baseline (T1; $n = 198$), 3 months (T2; $n = 123$), 6 months (T3; $n = 65$) and 12 months (T4; $n = 156$) in the Pre-COVID cohort. Follow-up rates in the Pre-COVID cohort were 62, 70 and 80%, respectively. Due to constraints associated with research capacity, specifically in terms of aligning data collection with shed opening hours, follow-up rates vary and rescheduling of data collection was not possible. At T3 in the Pre-COVID cohort a sub-sample of 6 out of 13 sheds were followed up with where 65 out of a potential 93 Shedders were present to complete follow up, i.e. 70%. Absence of data for participants does not necessarily indicate drop out. An estimated reach rate calculated on proportion of Shedders eligible to attend SFL ($n = 565$) against numbers who enrolled in SFL ($n = 421$), along with mean attendance rates of SFL components was estimated at 73% across both Pre-COVID and COVID cohorts. Baseline (T1; $n = 185$), 3 month (T2; $n = 106$) and 6 month (T3; $n = 146$) data were collected in the COVID cohort with 12 month (T4) pending. Follow-up rates were 57 and 79%, respectively. During the T3 follow-up in the COVID cohort ($n = 146$; June 2020), social distancing restrictions were in place; therefore, questionnaires were administered via telephone.

Table 1: Participant's and Shed characteristics

Age range		Pre-COVID cohort		COVID cohort		Overall sample 383	
		27 − 89 years (*n* = 198)	(*N* %)	30 − 90 years (*n* = 184)	(*N* %)	27 − 90 years (*n* = 383)	(*N* %)
Mean years(SD)		69.1 ± 9.685		69.0 ± 8.532		69.0 ± 9.136	
Ethnicity	White background					380	99.2
	Mixed background					3	0.8
Marital status	Married/cohabiting	153	77.3	128	69.2	281	73.4
	In a relationship	2	1.0	1	0.5	3	0.8
	Widowed	20	10.1	16	8.6	36	9.4
	Separated/divorced	8	4.0	14	7.6	22	5.7
	Single	15	7.6	26	14.1	41	10.7
Education	Primary education only	44	22.2	51	27.7	95	24.9
	Some/completed secondary	100	50.5	99	53.8	199	52.1
	Some/completed third level	47	23.7	31	16.7	78	20.4
	Some/completed postgrad	7	3.5	3	1.6	10	
Living situation	Lives alone	29	14.6	39	21.2	68	17.8
	Lives with family/partner	167	84.3	145	78.8	312	81.7
	Lives with friends	2	1.0	0	0	2	0.5
Employment	Employed (full-time, part-time or self-employed, looking after home/family)	28	14.1	17	9.2	45	11.8
	Unemployed/looking for work	4	2.0	3	1.6	6	1.6
	Retired from paid work	153	77.3	155	83.8	308	80.4
	Student or Volunteer	3	1.5	2	1.1	5	1.3
	Unable to work due to long-term illness/disability	10	5.1	8	4.3	18	4.7
No. of participants per shed (range)		8 − 26		14 − 37		8 − 37	
No. of delivery settings		13		9		22	
Mean no. of SFL participants		16.4 ± 6.331		23.2 ± 8.408		19.2 ± 7.854	
Geographic location of delivery setting[a]	Urban	10	77.0	4	44.0	14	64.0
	Rural	3	23.0	5	56.0	8	36.0

[a]The Census definition of an urban area is a town with a total population of 1500 or more. Towns with a population of less than 1500 are considered rural areas (CSO, 2019).

Questionnaires were adjusted to include questions which measured self-reported wellbeing outcomes prior to and during COVID-19.

Data analysis

Data were analyzed using Statistical Packages for the Social Sciences (SPSS V 24). Descriptive statistics for each variable were calculated and data collected across time points were compared using inferential tests to identify potential significant differences between points in time within the Pre-COVID and COVID cohorts. The Pre-COVID cohort was analyzed as a comparator as the T3 data point was pre-COVID. Scores at T3 in the Pre-COVID and COVID cohorts were also compared for differences between the two cohorts, adjusting for mean values and any differences present at T2. Data gathered in the COVID cohort during COVID-19 at 6-month follow-up were analyzed for differences in outcome measures pre and during COVID-19.

Table 2: Wellbeing measures in pre-COVID and COVID cohorts at T1, T2 and T3

(N = 383)%	Pre-COVID cohort			COVID cohort					Form of measurement
	T1	T2	T3	Pre-Shed	T1	T2	Pre-COVID	T3 (During COVID)	
Health rating	N = N%	N = N%	N = N%		N = N%	N = N%	N = N%	N = N%	Self-reported health rating 'I would say my health is'; 5-Point Likert: excellent to poor
Excellent	18 — 9.1%	19 — 14.6%	18 — 26.1%		11 — 5.9%	11 — 10.3%	19 — 13.1%	18 — 12.4%	
Very good	54 — 27.4%	40 — 30.8%	30 — 43.5%		55 — 29.7%	50 — 46.7%	45 — 31%	40 — 27.6%	
Good	77 — 39.1%	44 — 33.8%	16 — 23.2%		75 — 40.5%	34 — 31.8%	60 — 41.4%	58 — 40.0%	
Average	43 — 21.8%	25 — 19.2%	5 — 7.2%		35 — 18.9%	11 — 10.3%	20 — 13.8%	27 — 18.6%	
Poor	5 — 2.5%	2 — 1.5%	0 — 0.0%		9 — 4.9%	1 — 0.9%	1 — 0.7%	2 — 1.4%	
		*** T1 and T2 and T3			*** T1 and T2		*** Pre-COVID and T3		
Mean SD									
Loneliness (mean ± SD)	4.810 ± 2.146 (n = 195)	3.318 ± 0.868 (n = 195) T1 and T2*** T2 and T3**	3.088 ± 0.510 (n = 68)	4.810 ± 2.146 (n = 185) Pre-Shed and T1***	3.297 ± 0.916 (n = 185)	3.289 ± 0.836 (n = 109)	3.131 ± 0.637 (n = 145) Pre-COVID and T3***	4.621 ± 1.845 (n = 145)	Three-item UCLA loneliness scale. Rated on a three-point scale. Higher scores equal increased loneliness
Life satisfaction (mean ± SD)	8.073 ± 1.780 (n = 123)	8.4634 ± 1.553 (n = 123) T1 and T2*	8.275 ± 1.551 (n = 69)		7.912 ± 1.465 (n = 91) T1 and T2***	8.681 ± 1.298 (n = 91)	8.531 ± 1.225 (n = 145) Pre-COVID and T3***	7.828 ± 1.697 (n = 145)	ONS 11-point scale 0 – 10 'How satisfied are you with life nowadays?'
Life worthwhile (mean ± SD)	8.398 ± 1.602 (n = 123)	8.740 ± 1.441 (n = 123) T1 and T2**	8.536 ± 1.481 (n = 69)		8.1648 ± 1.522 (n = 91) T1 and T2**	9.099 ± 1.022 (n = 91)	8.804 ± 1.240 (n = 143) Pre-COVID and T3***	8.475 ± 1.495 (n = 143)	ONS 11-point scale 0 – 10 'To what extent do you feel the things you do in life are worthwhile?'
Mental wellbeing (mean ± SD)	26.640 ± 4.758 (n = 122)	29.916 ± 5.130 (n = 122) T1 and T2***	31.561 ± 4.230 (n = 69)		26.949 ± 4.670 (n = 91) T1 and T2***	31.735 ± 4.018 (n = 91)		30.657 ± 3.865 (n = 86)	Seven-item Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS)
Mean days PA for 30+ min (mean ± SD)	2.956 ± 2.291 (n = 123)	4.537 ± 3.265 (n = 123) T1 and T2***	3.840 ± 2.004 (n = 69)		2.875 ± 2.702 (n = 184) T1 and T2***	4.049 ± 2.313 (n = 102)	3.444 ± 2.563 (n = 144)	3.451 ± 2.780 (n = 144) T2 and T3*	On how many days in the past week have you done a total of 30 minutes or more PA which was enough to raise your breathing rate? 0 – 7 scale
Not meeting PA guidelines	(n = 135) 68.5%	(n = 65) 50.4%	(n = 41) 59.4%		(n = 125) 67.9%	(n = 57) 55.9%	(n = 95) 66%	(n = 88) 61.1%	

(continued)

Table 2: (Continued)

(N = 383)%	Pre-COVID cohort			COVID cohort					Form of measurement
	T1	T2	T3	Pre-Shed	T1	T2	Pre-COVID	T3 (During COVID)	
Meeting PA guidelines	34.5%(62)	49.6%(64) T1 and T2***	40.6%(28)		32.1%(59)	44.1%(95) T1 and T2***	34.0%(49)	38.9%(56)	Those who were active for 5 + days/week were classed as meeting pa guidelines
Days walking for 10+ mins (mean ± SD)	4.045 ± 2.516 (n = 123)	5.062 ± 2.264 (n = 123) T1 and T2***	4.750 ± 2.285 (n = 68)		4.549 ± 5.115 (n = 184)	5.537 ± 2.314 (n = 106) T1 and T2***	5.576 ± 2.304 (n = 144)	5.274 ± 2.370 (n = 144)	During the last 7 days on how many days did you walk for at least 10 minutes at a time for leisure or transport? 0 − 7 Scale
Minutes walking per day (mean ± SD)	31.49 ± 23.92 (n = 120)	40.09 ± 31.08 (n = 120)	41.84 ± 23.53 (n = 68)		35.10 ± 30.503 (n = 184)	35.56 ± 23.87 (n = 106)	39.10 ± 27.842 (n = 144)	38.87 ± 30.11 (n = 144)	How much time do you usually spend walking on those days? (minutes walking)
PA self-efficacy (mean ± SD)	53.331 ± 17.530 (n = 121)	66.736 ± 21.060 (n = 121) T1 and T2**	66.019 ± 17.414 (n = 68)		54.014 ± 22.159 (n = 88)	64.306 ± 16.541 (n = 88) T1 and T2***		68.076 ± 16.487 (n = 79) T2 and T3*	The nine-item SEE Scores range from 0 to 90 with higher scores indicating higher self-efficacy
Physical activity (PA) during COVID (T3)	PA more than usual	PA about the same	PA less than usual						Since the COVID-19 pandemic I have been doing physical activity: more than usual, about the same, less than usual
Overall (n = 145)	(n = 41) 28.3%	(n = 66) 45.5%	(n = 38) 26.2%						
Location: urban	(n = 23) 25.6%	(n = 35) 38.9%	(n = 32) 35.6%						
Location: rural	(n = 18) 32.7%	(n = 31) 56.4% Urban and rural*	(n = 6) 10.9%						

Table describes differences between T1, T2 and T3 in the pre-COVID and COVID clusters. 'Prior to COVID' is in relation to the perceived ratings the COVID cohort reported for outcome measures before experiencing COVID-19 restrictions. 'Prior to joining the shed' is in relation to loneliness scores and how respondents would have perceived their loneliness prior to becoming a men's shed member. Significant differences between time-points are marked with asterisk below the measure with mean time points indicated.

*Significant difference at $p < 0.05$.
**Significant difference at $p < 0.005$.
***Significant difference at $p < 0.001$.

RESULTS

In total, data pertaining to 383 men were analyzed with 146 of same (COVID cohort) experiencing the impact of COVID-19 restrictions. Table 1 describes key characteristics of both cohorts and their Sheds.

Impact of COVID on Shedders
Self-rated health

Both cohorts experienced an increase in self-rated health after the SFL intervention (T2; post SFL $z = -3.822$, $p < 0.0005$). Then, in contrast to the pre-COVID cohort who continued to increase significantly at T3 (Wilcoxon matched pairs test; $z = -3.460$, $p < 0.005$; Table 2), there was a significant reduction in self-rated health for the COVID cohort $z = -3.77$, $p < 0.0005$. Previously there had been a significant increase in perceived health rating from T1 to T2. This trend was statistically similar in the PRE-COVID cohort.

Subjective wellbeing

There was a significant decrease in life satisfaction during COVID-19 restrictions (T3) compared with levels reported prior to COVID-19 restrictions, with a mean difference of -0.70345 (95% CI -0.907 to -0.499), $t = -6.818$, $p < 0.0005$ in the COVID cohort (Table 2). There had been a significant increase in life satisfaction in both cohorts at T1 and T2, with no significant change at T3 in the Pre-COVID cohort. A one-way ANCOVA was used to compare scores at T3 between both cohorts, adjusting for differences at T2. Data are adjusted mean ± standard error. Life satisfaction was greater in the PRE-COVID cohort ($n = 53$) (8.337 ± 0.202) compared with the COVID cohort ($n = 86$) (7.722 ± 0.158) at T3 $p < 0.05$.

Similarly, there was a significant reduction in the extent Shedders felt the things they do in life are worthwhile during COVID-19 compared with prior to COVID-19 with a mean difference of -0.329 (95% CI -0.468 to -0.188), $t = -4.648$, $p < 0.0005$. Ratings had increased significantly in both cohorts at T1 and T2 (after the 10-week SFL intervention) with no significant change at T3 in the pre-COVID cohort. A one-way ANCOVA did not find significant differences between the two cohorts at T3.

Mental wellbeing

There was a significant increase in WEBMWS scores from T1 to T2 in both cohorts (Table 2). Scores decreased from T2 to T3 in the COVID cohort during COVID-19 but not significantly. At T3 in pre-COVID cohort scores continued to increase from T2 but not significantly. There was no significant difference in WEBMWS scores between the pre-COVID and COVID cohorts at T3 $p = 0.051$.

Loneliness

Shedders in the COVID cohort were asked to rate their loneliness scores prior to joining the Shed and at T1, T2, prior to COVID-19 restrictions and during COVID-19 restrictions (T3) (Table 2). Shedders reported increased feelings of loneliness prior to joining the shed compared with T1 with a statistically significant decrease. Similar mean scores were maintained until Shed closures at T3 in the COVID cohort where there was a statistically significant increase in loneliness scores of 1.489 (95% CI -1.775 to -1.230) $t = 10.306$, $p < 0.0005$. Shedders in the pre-COVID cohort had statistically similar loneliness scores up to T3 with loneliness scores continuing to decrease at T3 0.423 (95% CI $0.168 - 0.678$) $t = 3.335$, $p = 0.002$. A one-way ANCOVA was used to compare scores at T3 between both cohorts, adjusting for differences at T2 (mean ± standard error adjusted). Loneliness scores were significantly lower in the pre-COVID cohort ($n = 53$; 3.016 ± 0.202) compared with the COVID cohort ($n = 86$; 4.837 ± 0.158) at T3 $p < 0.0005$.

An independent sample's *t*-test was used to determine if there were differences in loneliness ratings during COVID-19 restrictions (T3) between those who live alone ($n = 38$; 4.679 ± 2.121) and with family ($n = 157$; 3.936 ± 1.517). Those who lived alone reported significantly greater feelings of loneliness (95% CI $1.329 - 1.310$) $t = 2.148$, $p < 0.05$. No significant differences were found in feelings of loneliness between those living alone and those living with family prior to COVID-19. Those who scored between 3 and 5 on the UCLA scale were categorized as 'not lonely' and those who scored between 6 and 9 were categorized as 'lonely' according to Resnick and Jenkins (Resnick and Jenkins, 2000). There was a significant increase in those who fit the 'lonely' category at T3 during COVID-19 ($n = 43$, 29.7%) compared with before COVID restrictions ($n = 2$, 1.4%), $p < 0.0005$. Those in the 'lonely' category at T3 also had significantly lower perceived health rating in comparison to the 'not lonely' category $p < 0.005$. Those who were categorized as 'lonely' ($n = 43$; 6.837 ± 1.938) also had significantly lower life satisfaction ratings at T3 in the COVID cohort compared with those categorized as 'not lonely' ($n = 101$; 8.228 ± 1.392) with a mean difference of -1.390 (95% CI -1.956 to -0.824), $p < 0.0005$.

It was also noteworthy that those in the 'lonely' category had significantly fewer days active per week

($n = 42$; 1.976 ± 2.493) compared with the 'not lonely' ($n = 101$; 4.030 ± 2.670) category at T3 with a mean difference of −2.053 (95% CI −2.903 to −1.268), $p < 0.0005$. No significant differences existed prior to T3. Those in the 'lonely' category were significantly more likely to report being active 'less than usual' ($n = 19$, 45.2%) compared with those in the 'not lonely' category ($n = 18$, 18.2%), demonstrating significantly lower rates of PA in the 'lonely' group at T3 $p < 0.0005$.

Alcohol and tobacco consumption

Days drinking in the COVID cohort prior to COVID-19 (2.15 ± 1.658) reduced during COVID-19 (T3) (1.86 ± 1.805) alongside mean units consumed prior (5.84 ± 5.219) and during COVID-19 (T3) (4.37 ± 3.471). These results were found to be statistically significant for both days drinking [−0.250 (95% CI −0.406 to −0.0294), $p = 0.27$] and units consumed [−1.435 (95% CI −0.257 to −0.295), $p = 0.14$]. Results were similar in the pre-COVID cohort but there were no significant differences between T2 and T3. A small proportion of Shedders ($n = 5$) were reported to smoke and there was no significant difference in tobacco consumption.

Physical activity

Geographical location was measured for differences in physical activity rates during COVID-19. Men living in rural areas reported an increased rate of physical activity during social restrictions compared with urban areas ($Z = -2.491$, $p = 0.13$; Table 2).

Physical activity was measured as mean days active, days walking and minutes walking (Table 2). Results were statistically similar in both cohorts with significant increases in days active and days walking between T1 and T2. There was a significant decrease in days active between T2 and T3 in the COVID cohort but not in the pre-COVID cohort. There were no significant changes in days or minutes walking at T3 for either cohort. A one-way ANCOVA did not find significant differences between the two cohorts at T3 across days active, days walking or minutes walking.

Total physical activity self-efficacy scores in the COVID and pre-COVID cohorts increased significantly between T1 and T2. In the COVID cohort scores continued to increase significantly during COVID-19 restrictions at T3 with a mean increase of 4.228 (95% CI $0.114 - 8.341$), $t = -2.046$, $p = 0.04$. Scores in the Pre-COVID cohort showed no significant change at T3. There were no significant differences found in physical activity self-efficacy between the two cohorts at T3.

Those who were active 5 days or more were categorized as meeting the physical activity guidelines of 30 min or more 5 days per week, with the remainder categorized as not meeting the guidelines. There was a significant difference in those meeting the guidelines between T1 and T2 in both cohorts but no significant difference in those meeting the guidelines at T3 in either cohort. There was also no significant difference between groups meeting the guidelines at T3 (Table 2). Independent-samples t-tests were run to determine differences in those meeting the guidelines and loneliness, subjective wellbeing, mental wellbeing and PA self-efficacy. Those meeting PA guidelines had significantly lower loneliness scores ($n = 55$; 4.163 ± 1.948) compared with those not meeting PA guidelines ($n = 55$; 4.997 ± 1.947; 95% CI $0.178 - 1.350$), $p < 0.05$. There was no significant difference between those meeting PA guidelines and loneliness scores prior to COVID-19. There was also a significant difference in PA self-efficacy scores at T3 between those meeting the guidelines ($n = 52$; 79.923 ± 11.117) and those not ($n = 85$; 63.964 ± 18.861; 95% CI −15.024 to −4.257) $p < 0.0005$. PA self-efficacy scores were significantly lower in those not meeting guidelines at all time points. Those who were meeting the guidelines were also more likely to report being more physically active ($N = 27$, 48.2%), or to maintain PA levels ($n = 21$, 37.5%) rather than less active ($n = 8$, 14.3%). Those not meeting the guidelines were less likely to report being more physically active ($n = 14$; 16.1%) with 49.4% ($n = 43$) reporting PA levels stayed the same and 34.5% ($n = 30$) reporting less physical activity during COVID-19. Differences were statistically significant with those meeting the PA guidelines more likely to increase activity during COVID-19 and those not meeting the guidelines more likely to decrease activity $p < 0.0005$.

DISCUSSION

This study sought to investigate the impact of the COVID-19 pandemic and its restrictions on an older cohort of men who were members of Irish Men's Sheds. Findings were harvested from a wider evaluation of a tailored health promotion initiative (SFL). The strong theoretical underpinnings alongside the empirical longitudinal and comparator data provides unique and timely evidence on the impact of COVID-19 on wellbeing in older Shed members in Ireland. Findings provide valuable insights into the potential impact COVID-19 can have on exacerbating the social gradient in men's health (WHO, 2018), as well as underlining the importance of gender-sensitive programs such as SFL to engage and

contribute to enhanced wellbeing outcomes among 'hard to reach' groups of men (Bergin and Richardson, 2020).

Loneliness and wellbeing

One of the starkest findings to emerge from this study was the sharp increase in feelings of loneliness and loneliness scores among Shedders during COVID-19 (1.4 – 29.7%). Shedders in the COVID cohort also reported increased feelings of loneliness before they joined the Shed compared with when they were Shed members. Mean scores rated before they became a Shedder and at T3 (during COVID-19), when they could not attend their shed were statistically similar. These findings suggest that Sheds are protective against loneliness, and the loss of the Shed during COVID-19 as well as other meaningful social interactions are correlated with the increased feelings of loneliness. Moreover, prior to COVID-19 there were no significant differences in loneliness between those living with family or living alone. Amongst the COVID cohort at T3, those living alone had significantly higher loneliness scores than those living with family, suggesting again that the Shed may be protective against loneliness for those at risk of isolation by providing meaningful social interaction with other Shedders prior to COVID-19. In keeping with previous findings (Campbell, 2020; Nasem, 2020), higher rates of loneliness were correlated with reduced wellbeing in this study with Shedders in the 'lonely' category more likely to have poorer perceived health ratings, lower life satisfaction scores and lower rates of physical activity. This highlights the need for and the value of tailored interventions such as SFL to ameliorate the impact of loneliness among this vulnerable cohort of men.

Mental wellbeing scores increased significantly from baseline to 10 weeks post-SFL and were sustained at 6 months, with no significant differences being reported between groups at T3. Nevertheless, loneliness is directly correlated with poor mental health (Santini *et al.*, 2016), which suggests that the COVID cohort may be at increased risk over the medium term, particularly among the more vulnerable Shedders with pre-existing mental illness as also suggested by Hamm *et al.* (Hamm *et al.*, 2020). Subjective wellbeing scores at T3 for the COVID cohort were also significantly lower having increased following SFL and persisted in the pre-COVID comparator cohort at T3. On a positive note, life satisfaction scores in the COVID cluster Shedders are higher than those for adults over 50 years in Ireland [7.83 vs 7.56 (OECD, 2020)] perhaps indicating that Shed membership and the SFL intervention supported them during the COVID-19 restrictions. Their feelings of subjective wellbeing may have been enabled through interaction facilitated through virtual and socially distanced contact with other Shedders. For instance, a previous report by McGrath (McGrath, 2020) highlighted how Shedders used alternative means to communicate with one another during COVID-19, perhaps facilitated by the digital literacy component of the SFL intervention in some Sheds. Whilst there was a clear consensus that remote communication cannot replace the benefits of first person and group interaction in the Shed, the evidence that Shedders have made efforts to continue to communicate with other Shedders through phone and online platforms is encouraging and may protect against feelings of loneliness and poorer wellbeing. This also means that Shedders who do not have access to this form of communication or lack basic IT skills may be at an increased risk of isolation (McGrath, 2020). It may be more pertinent now than ever in the face of a pandemic that requires social distancing that efforts are made to provide older adults with the necessary digital skills to communicate online and combat digital exclusion. Online mental health services have been widely adopted in China and are urged in other countries (Talevi *et al.*, 2020) but a rapid review conducted to assess the effectiveness of video calls for reducing social isolation, loneliness and depression in older adults, found limited evidence of effectiveness (Noone *et al.*, 2020). Findings also suggest the cohort of men in the Sheds value and thrive on face-to-face interaction and priority may be best focused on safeguarding the return of these men into the Sheds.

Lifestyle
Physical activity

There were no significant differences in PA measures between the two cohorts at T3 suggesting that the observed PA increases due to the SFL intervention were maintained. The Irish Longitudinal Study on Ageing (TILDA) found that 42% of men over 50 years reach the recommended PA guidelines (Donoghue *et al.*, 2016), whereas during COVID-19, 38.9% of Shedders were meeting the PA guidelines. Previous work has highlighted that older adults are at increased risk of physical activity decline during COVID-19, potentially leading to poorer immune response, reduced mobility and overall quality of life (Roschel, 2020). Findings in this study suggest that over a quarter (26.2%) of Shedders have become less physically active, reflecting the need for tailored interventions to facilitate physical activity and social engagement (Son *et al.*, 2020).

An online survey investigating how lockdown impacted PA behavior and wellbeing of Canadians found that inactive individuals were more likely to become less active, whereas active individuals were more likely to become more active (Lesser and Nienhuis, 2020). This was also the case in this study-Shedders who were meeting PA guidelines were more likely to become more active or maintain their activity with those not meeting the guidelines more likely to become less active. The support of other Shedders has been previously documented as having a positive impact on engagement in heath promoting activities in Irish Sheds (Lefkowich and Richardson, 2018), with group exercises also found to be beneficial for older adults more widely (Komatsu *et al.*, 2017). Thus, some men may particularly struggle with motivation with the loss of the Shed environment.

Rural dwellers in the COVID cohort reported higher levels of PA compared with the urban dwellers. This may seem contrary to expectation with urban areas more likely to facilitate accessibility and opportunities to be active. Similarly, cross-sectional analysis in a nationally representative older adult cohort in Ireland found that those living in urban locations were $1.1 - 1.8$ times less likely to meet the physical activity recommendations than rural dwellers (Murtagh *et al.*, 2014). Differences between urban and rural Shedders were not significant prior to COVID-19. Reductions in PA levels may be due to the guidelines set in place by government limiting activity beyond the home. Shedders in rural areas possibly used PA as a form of leisure when social interactions were limited, finding it easier to maintain social distancing compared with Shedders cocooning in busier urban areas. Moreover, access to green spaces for leisure may have been more plentiful in rural areas compared with urban areas (WHO, 2017). Increased physical activity enables a reset of physical and mental wellbeing. During periods of lockdown, it is recommended that exercise should be as vigorously promoted as social distancing itself (Matias *et al.*, 2020). The findings above therefore highlight that vulnerable older adults in urban areas may need more tailored physical activity opportunities during and post COVID-19 restrictions alongside the 61.1% of Shedders not meeting the PA guidelines during COVID-19.

Alcohol

Alcohol consumption significantly decreased among Shedders during COVID-19 follow-up. A report from the Central Statistics Office on the social impact of COVID-19 found that 20.9% of men increased their alcohol intake, with a much higher rate of male respondents (26.0%) reporting a decrease in alcohol consumption compared with females (8.6%). Over half of male respondents (53.1%) reported no change (CSO, 2020). A stipulation for how COVID-19 has impacted males and females differently maybe be due to changes in caring responsibility (Biddle *et al.*, 2020). It may be that the cohort of men in Sheds consume alcohol as a means of socializing and due to pub closures under COVID-19 restrictions, alcohol consumption may have decreased. Coupled with the low rates of smoking these findings in relation to positive health behavior change among a so-called 'hard-to reach group' are promising in the context of COVID-19, in that mitigation of the virus relies heavily on public health measures promoting health behavior change to slow its spread (WHO, 2020).

Limitations

As with every study, limitations exist, notably the subjective nature of the data and the inherent bias in the self-report format as well as inconsistencies in follow-up points. However, it is worth noting that constructs of wellbeing and perceived health status are subjective in their own right and the evaluation is pragmatic in its approach, capturing insights from Shedders in the real world context of a typically close-knit setting. Due to social restrictions during COVID-19, T3 follow-ups in the COVID cohort were also moved from being conducted in person to phone administered. However, every effort was made to communicate questions and responses clearly and ensure participants responded independently. Moreover, Shedders would have completed the questionnaire on at least two previous occasions meaning that they were familiar with the researchers, process and format. Finally, while this research aims to measure the impact of COVID-19 on Irish Men's Shed members generally, it is reporting only on the impact of COVID-19 on those Shedders who had voluntarily participated in SFL, a health and wellbeing intervention.

CONCLUSIONS

The study provides valuable longitudinal data on the impact of the COVID-19 pandemic on wellbeing in an understudied and 'hard to reach' group of Irish Men's Shed members. The findings demonstrate the potential deleterious effect of COVID-19 on a group of men who were already engaged with health and wellbeing as a result of a community-based men's health promotion program (SFL), coupled with the inherently health promoting benefits of the Sheds. The COVID-19

restrictions alongside the loss of the Shed as a social and emotional outlet for Shedders has had a significant impact on the wellbeing of Shedders experiencing COVID-19, evident by the sharp rise in loneliness and decline in subjective wellbeing. Those who were lonelier fare less well in terms of health outcomes, and those were already physically inactive appear to become more inactive under COVID-19. Therefore, attention should be focused on those who are most vulnerable and in need of tailored interventions to support their wellbeing during and post COVID-19. This research also highlights the importance of Sheds as a setting to adopt and maintain positive health behaviors among this cohort of men. The Sheds safeguard against loneliness and provide opportunities to engage with health and wellbeing through inclusive, community-based, gender-sensitive approaches such as SFL. This strategy may be an effective approach in ameliorating the impact of COVID-19 on men in Sheds.

ETHICAL APPROVAL

The study received full ethical approval from Waterford Institute of Technology Research Ethics Committee (REF: WIT2018REC0010).

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