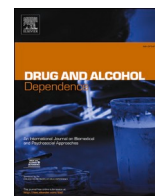




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Acceptability of real-time video counselling compared to other behavioural interventions for smoking cessation in rural and remote areas

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ABSTRACT

Background: This study evaluated the acceptability of real-time video counselling compared to a) telephone counselling and b) written materials in assisting rural and remote residents to quit smoking.

Methods: Participants were recruited into a three-arm, parallel group randomised trial and randomly allocated to either: a) real-time video counselling; b) telephone counselling; or c) written materials. At 4-months post-baseline participants completed an online survey that examined self-reported acceptability and helpfulness of the support.

Results: Overall, 93.5 % of video counselling participants and 96.2 % of telephone counselling participants who received support thought it was acceptable for a smoking cessation advisor to contact them via video software or telephone respectively. There were significant differences between video counselling and telephone counselling groups on three of 10 acceptability or helpfulness measures. Video counselling participants had significantly lower odds of reporting the number of calls were about right (OR 0.50, 95 % CI 0.27–0.93), recommending the support to family and friends (OR 0.18, 95 % CI 0.04–0.85) and reporting the support helped with motivation to try quitting (OR 0.24, 95 % CI 0.07–0.76) compared to telephone counselling participants. Video counselling participants had significantly greater odds than written materials participants of rating the support favourably on all seven acceptability and helpfulness items compared.

Conclusions: Real-time video counselling for smoking cessation is acceptable and well-received by those living in rural and remote locations. Further research is required to enhance the three attributes that were less acceptable for video counselling than telephone counselling.

1. Introduction

Real-time video communication using the internet and software applications (e.g. Skype) (Armfield et al., 2012) can be delivered to people in their home or place of choice to assist them to quit smoking (Kim et al., 2016). In 2018, there were up to 3.9 billion internet users worldwide (Statista, 2019), with users able to download video communication software for free (Collins et al., 2011). In Australia, 86 % of households have internet access at home, including 88 % of those living in major cities, 82.7 % in inner regional locations, 80.7 % in outer regional locations and 77.1 % in remote areas (Australian Bureau of Statistics, 2018b). Benefits of video counselling compared to other behavioural interventions such as telephone counselling and written

materials include that video counselling allows counsellors to respond to the client's verbal and non-verbal cues. The Media Richness theory (Ishii et al., 2019) conceptualises that real-time video counselling would rank highly as a rich mode of communication because it provides virtual face-to-face support. The advisors are able to respond to non-verbal cues which may increase therapeutic alliance. Despite these benefits and the growing number of people using the internet and smartphone devices, real-time video counselling for smoking cessation has not been introduced by quitlines as part of routine practice (Greenhalgh et al., 2020). The use of video communication technology to provide health care services during the COVID-19 pandemic illustrates the sustainability of video counselling for smoking cessation. If such support is as acceptable as existing quitline services, then the mode used to deliver smoking

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cessation support could be based on client preference.

Quitlines provide smoking cessation support including telephone counselling and written materials (Livingstone-Banks et al., 2019; Matkin et al., 2019). Through quitlines, telephone support and written materials can reach large populations (Zhu et al., 2002) and particular populations such as young people (Cummins et al., 2007) and those living in rural areas (Sheffer et al., 2012). In an Australian study, 93.6 % of participants found telephone counselling for smoking cessation to be very acceptable or acceptable and most reported that the advice helped a lot/little with: motivation to quit or stay quit (79.4 %), motivation to try again if slipped (77.1 %), coping with cravings or triggers (64.4 %) and avoiding slips (62.7 %) (Tzelepis et al., 2009). Written materials have also been found to be acceptable in assisting with smoking cessation (Quit Victoria, 2016; Wakefield and Miller, 1999). Among those who used written materials from a quitline, most reported that the advice helped a lot/little with motivation to try again if slipped (72.0 %), motivation to quit or stay quit (70.8 %), coping with cravings or triggers (55.4 %) and avoiding slips (54.3 %) (Tzelepis et al., 2009).

Three US studies have compared the acceptability of real-time video counselling to telephone counselling (Kim et al., 2018, 2016; Richter et al., 2015) and no studies have compared the acceptability of real-time video counselling to written materials. Two studies measured acceptability using the Client Satisfaction Questionnaire and found no significant differences between the video counselling and telephone counselling groups on acceptability scores (Kim et al., 2018, 2016). These studies targeted particular groups of smokers, specifically women living with HIV (Kim et al., 2018) and Korean American women (Kim et al., 2016). The third study with rural residents measured satisfaction with counselling and the overall intervention and found the video counselling arm (97 %) was significantly more likely than the telephone counselling arm (92 %) to recommend the programme to friends/family (Richter et al., 2015). However, participants in this study attended their physician's office to use the video-conferencing equipment (Richter et al., 2015). Therefore, it is unknown how acceptable real-time video counselling for smoking cessation delivered directly to smokers' homes or place of choice is for rural and remote residents compared to telephone counselling or written materials.

This study aimed to evaluate the acceptability of real-time video counselling compared to a) telephone counselling and b) written materials in assisting rural and remote residents to quit smoking.

2. Materials and methods

2.1. Design

This article reports on the acceptability measures of a randomised trial of real-time video counselling compared to a) telephone counselling; and b) written materials. Acceptability was assessed at 4-months post-baseline. A detailed description of the study design has been published elsewhere (Tzelepis et al., 2018). The University of Newcastle Human Research Ethics Committee provided ethics approval. The trial is prospectively registered with the Australian New Zealand Clinical Trials Registry (ACTRN12617000514303).

2.2. Participants

Participants were recruited between 25th May 2017 and 2nd October 2018. Eligibility criteria were: daily tobacco use; aged 18 years or older; access to a telephone; access to a mode of video-communication (e.g. Skype); internet access; a current e-mail address; and reside in an inner regional, outer regional, remote or very remote area of New South Wales, Australia. Individuals were eligible regardless of their quitting intention. This is supported by evidence that about half of smokers make an unplanned, sudden decision to quit (Larabie, 2005; West and Sohal, 2006). A previous trial also found that if a telephone counselling intervention had been restricted to individuals who intended to quit

within 30 days, 53.8–65.9 % of intervention participants who achieved prolonged abstinence would have missed out on telephone support (Tzelepis et al., 2013).

2.3. Procedure

Participants were recruited via online and traditional approaches (e.g. Facebook, newspaper) (Byaruhanga et al., 2019). The Accessibility and Remoteness Index of Australia (ARIA+) was used to target recruitment efforts to smokers who live in rural and remote areas. The ARIA+ is a geographic accessibility index that reflects the ease or difficulty people face accessing services in non-metropolitan Australia (Australian Bureau of Statistics, 2018a). Potential participants were asked to answer a short online screening survey. After completion of the screening survey questions, the computer software determined whether eligibility requirements were met and notified potential participants if they were eligible to participate. Eligible participants' name, e-mail address and telephone number were used to cross-check they were not already enrolled in the study. Each person was only able to enrol in the study once. Eligible participants were redirected to the online baseline survey and at the end of this survey a random number generator embedded into the computer software randomly allocated participants to either: a) real-time video counselling; b) telephone counselling or c) written materials (control group).

At 4-months post-baseline, the hyperlink to the online follow-up survey was e-mailed to participants which included items about acceptability, helpfulness and satisfaction with the cessation support. A reminder e-mail was sent to non-respondents one week later and after a further week a telephone reminder call was made.

2.4. Intervention conditions

2.4.1. Video counselling condition

Participants randomised into the real-time video counselling arm received up to six smoking cessation video sessions conducted by a smoking cessation advisor using the participant's desired form of video communication. The sessions used cognitive behaviour therapy (Clark and Fairburn, 2015) and motivational interviewing techniques (Miller and Rollnick, 2012). The smoking cessation sessions assessed smoking status and smoking history; identified barriers to smoking cessation (e.g. drinking alcohol) and potential solutions, involved discussing effective smoking cessation strategies including both behavioural interventions and pharmacotherapies; and promoting self-efficacy and relapse prevention strategies to quit smoking.

The initial video session was scheduled within one week of recruitment where possible. During the initial video session participants who indicated they were ready to quit within a month were offered five additional video sessions on the quit date and at 3, 7, 14 and 30 days after the quit date. Those who relapsed and set a new quit date within a month restarted the ready to quit callback schedule, whereas those who did not set a new quit date were offered a call in 2 weeks' time. Participants who indicated that they were not ready to quit within a month during the initial video session were offered video support sessions at 2, 4 and 6 weeks. If those who were initially not ready to quit indicated during a counselling call they were now ready to quit within a month, they were offered a counselling session on their nominated quit date.

2.4.2. Telephone counselling condition

The participants randomised into the telephone counselling arm received up to six smoking cessation telephone sessions conducted by the smoking cessation advisor. The content, counselling techniques and callback schedule was the same as the video support sessions.

2.4.3. Smoking cessation advisors

There were six smoking cessation advisors with university qualifications in psychology, education, social sciences and allied health. Each

advisor received an additional one-day face-to-face training session on the study protocol prior to counselling participants. The smoking cessation advisors were also trained on the study background and procedures, adherence to study protocol, the different callback schedules, call content, how to use the video communication equipment and how to record the required information for each video or telephone session. To control for variability between advisors, the smoking advisors counselled participants from both video and telephone groups.

2.4.4. Intervention fidelity

The researcher monitored adherence to evidence-based approaches via the mandatory information recorded by each advisor for each session. This included information about the evidence-based strategies discussed (e.g. nicotine replacement therapy, bupropion, varenicline) and behavioural techniques offered (e.g. goal setting, use of adaptive coping strategies, relaxation, distraction). Video counselling and telephone counselling sessions were offered based on the above-mentioned callback schedules but scheduled based on participant preference. This is the same process used by the NSW Quitline to deliver support in our prior trial (Tzelepis et al., 2011) and ensured responsiveness to participant needs and availability.

2.4.5. Written materials condition

Participants in this condition were mailed written materials (i.e. quit kit). The materials described four broad areas, a) reasons to quit, b) preparing to quit, c) staying quit, d) managing setbacks and listed support services. The written materials included a leaflet that described pharmacotherapies for smoking cessation.

2.5. Measures

2.5.1. Baseline assessment

The baseline survey measured demographic characteristics including: gender, age, country of birth, education, Aboriginal or Torres Strait Islander origin, employment, marital status, location, and smoking-related characteristics such as nicotine dependence and quitting intentions.

2.5.2. 4-months post-baseline follow-up

During the 4-month follow-up survey, items about acceptability and helpfulness of the support were assessed. These items were based on previous acceptability studies (Kim et al., 2016; Tzelepis et al., 2009). Participants were asked these items if they had received at least one video counselling call, at least one telephone counselling call or had read at least some of the written materials.

2.5.3. Acceptability of video/telephone sessions

To compare the acceptability of the mode of contacting participants for counselling, participants in the video or telephone counselling conditions were asked, "How acceptable did you find having a smoking cessation advisor contact you via video/phone you up about trying to quit?" The response options were very acceptable, acceptable, unacceptable, very unacceptable and don't know.

2.5.4. Satisfaction with number and spacing of video/telephone sessions

Participants in the video and telephone conditions were asked; "Would you say that the number of video/telephone support sessions you received were:" a) too many, b) about right, c) too few, d) don't know. They were also asked "Were you satisfied with how these video/telephone support sessions were spaced out?" The response options were very satisfied, satisfied, unsatisfied, very unsatisfied and don't know.

2.5.5. Helpfulness of video sessions/telephone sessions/written materials

Participants rated the helpfulness of the information or advice they received, by responding to the five following questions: "How would you rate the information and advice you received during the video support

sessions/telephone sessions/written materials (brochures) in helping you with the following? a. Motivation to try quitting, b. Motivation to stay quit, c. Coping with cravings or situations that make you want to smoke, d. Motivation to try again if you slipped up, and e. Avoiding slip ups." The response options were didn't help me, helped me a little, helped me a lot and not applicable.

2.5.6. Recommendation of support to friends or family to help them quit

Participants from all three conditions were asked "How likely would you be to recommend the video support sessions/telephone support sessions/written materials (brochures) to friends/family to help them quit smoking? The response options were definitely would, probably would, probably would not and definitely would not.

2.5.7. Overall rating of support received

Participants from all three conditions rated the support received by responding to, "Overall how would you rate the video support sessions/telephone support sessions/written materials (brochures)?" The response options were excellent, very good, good, fair, poor and very poor.

2.6. Statistical analysis

Statistical analyses were completed in SAS 9.3. Demographics were summarised, overall and by condition, using descriptive statistics (proportions for categorical variables, means, standard deviations and medians for continuous variables). Logistic regression analyses were performed to assess whether there was a significant association between conditions (video versus telephone and video versus written where relevant) and the following outcomes of interest: acceptability of mode of contact, satisfaction with spacing of sessions, satisfaction with number of sessions, recommendation to friends or family, overall rating of support received and for each of the helpfulness items. Tests of significance were performed at $\alpha = 0.05$.

To examine potential modifiers of the effect of groups on the above outcomes, subgroup analyses were performed through the addition of a group interaction effect with each of the following measures: gender, age, education, location, intention to quit.

3. Results

A total of 655 participants (201 video group, 229 telephone group, 225 written materials group) were recruited into the smoking cessation trial. The mean age was 43.7 (SD = 11.8) years, 77.4 % were female, 55.4 % were married/living in a defacto relationship (Table 1). There were no significant differences in baseline characteristics between the three conditions.

Overall 374 participants completed the 4-month post-baseline survey (retention rate = 57.1 %). This comprised of 111 participants allocated to video counselling, 121 participants in the telephone counselling group and 142 participants in the written materials (control) group (Table 1). Retention rates did not differ significantly across the three groups.

There were no significant differences between those that completed the 4-months survey and those that did not according to gender, marital status, employment, country of birth, quitting intentions and nicotine dependence. However, participants had significantly higher odds of not completing the 4-month survey if they were younger (1 year decrease OR 1.02 95 % CI 1.01–1.04), their highest level of education was Year 10 or less (OR 2.47 95 % CI 1.56–3.91) or HSC/Year 12 or TAFE (OR 1.89 95 % CI 1.24–2.87), from a remote location (OR 7.29 95 % CI 1.58–33.65) and identified as Aboriginal or Torres Strait Islander (OR 1.98 95 % CI 1.12–3.51).

Among the 4-month survey respondents, participants were asked about the acceptability of the support (n = 311) if they received at least one video counselling call (n = 92), at least one telephone counselling

Table 1

Participant baseline characteristics for a) overall sample and b) 4-month survey respondents.

Characteristic	Overall sample				4-month survey respondents			
	Video counselling N = 201	Telephone counselling N = 229	Written materials N = 225	Total N = 655	Video counselling N = 111	Telephone counselling N = 121	Written materials N = 142	Total N = 374
Gender, n (%)								
Male	43 (21.4)	55 (24.0)	50 (22.2)	148 (22.6)	30 (27.0)	30 (24.8)	35 (24.6)	95 (25.4)
Female	158 (78.6)	174 (76.0)	175 (77.8)	507 (77.4)	81 (73.0)	91 (75.2)	107 (75.4)	279 (74.6)
Age (years)								
Mean (SD)	43.2 (12.2)	44.2 (11.4)	43.6 (12.1)	43.7 (11.8)	45.5(12.0)	45.5(11.4)	44.2 (11.3)	45.0 (11.4)
Median	43.0	44.0	43.0	43.0	46.0	46.0	44.0	45
Country of Birth, n (%)								
Australia	175 (87.1)	201 (87.8)	194 (86.2)	570 (87.0)	92 (82.9)	107 (88.4)	119 (83.8)	318 (85.0)
Other	26 (12.9)	28 (12.2)	31 (13.8)	85 (13.0)	19 (17.1)	14 (11.6)	23 (16.2)	56 (15.0)
Marital Status, n (%)								
Married/default	112 (55.7)	134 (58.5)	117 (52.0)	363 (55.4)	62 (55.9)	69 (57.0)	77 (54.2)	208 (55.6)
Divorced	31 (15.4)	20 (8.7)	23 (10.2)	74 (11.3)	19(17.1)	12 (9.9)	15 (10.6)	46 (12.3)
Married but separated	5 (2.5)	20 (8.7)	21 (9.3)	46 (7.0)	1(0.9)	10 (8.3)	9 (6.3)	20 (5.3)
Widowed	3 (1.5)	7 (3.1)	6 (2.7)	16 (2.4)	1 (0.9)	5 (4.1)	4 (2.8)	10 (2.7)
Never married	48 (23.9)	44 (19.2)	55 (24.4)	147 (22.4)	28(25.2)	22 (18.2)	36 (25.4)	86 (23.0)
Don't know	2 (1.0)	4 (1.8)	3 (1.3)	9 (1.4)	0 (0)	3 (2.5)	1 (0.7)	4 (1.1)
Education, n (%)								
University or tertiary	56 (28.1)	42 (18.4)	48 (21.3)	146 (22.4)	41 (36.9)	26 (21.5)	36 (25.4)	103 (27.5)
HSC ^a /Year 12 or TAFE ^b	92 (46.2)	116 (50.7)	114 (50.7)	322 (49.3)	48 (43.2)	61 (50.4)	71 (50.0)	180 (48.1)
Year 10 or less	51 (25.6)	71 (31.0)	63 (28.0)	185 (28.3)	22 (19.8)	34 (28.1)	35 (24.7)	91 (24.3)
Aboriginal or Torres Strait Islander, n (%)								
Yes	13 (6.5)	23 (10.0)	17 (7.6)	53 (8.1)	4 (3.6)	9 (7.4)	9 (6.3)	22 (5.9)
No	188 (93.5)	206 (90.0)	208 (92.4)	602 (91.9)	107 (96.4)	112 (92.6)	133 (93.7)	352 (94.1)
Employment, n (%)								
Employed full time	74 (36.8)	78 (34.1)	88 (39.1)	240 (36.6)	37 (33.3)	41 (33.9)	59 (41.5)	137 (36.6)
Employed part time	32 (15.9)	31 (13.5)	37 (16.4)	100 (15.3)	19 (17.1)	18 (14.9)	22 (15.5)	59 (15.8)
Employed casual	26 (12.9)	29 (12.7)	15 (6.7)	70 (10.7)	16 (14.4)	13 (10.7)	9 (6.3)	38 (10.2)
Unemployed	15 (7.5)	14 (6.1)	11 (4.9)	40 (6.1)	11(9.9)	7 (5.8)	6 (4.2)	24 (6.4)
Student	6 (3.0)	8 (3.5)	13 (5.8)	27 (4.1)	2 (1.8)	6 (5.0)	8 (5.6)	16 (4.3)
Retired	11 (5.5)	13 (5.7)	11 (4.9)	35 (5.3)	10 (9.0)	10 (8.3)	5 (3.5)	25 (6.7)
Permanently unable to work	11 (5.5)	21 (9.2)	24 (10.7)	56 (8.6)	5 (4.5)	11 (9.1)	19 (13.4)	35 (9.4)
Home duties	23 (11.4)	30 (13.1)	20 (8.9)	73 (11.2)	10 (9.0)	13 (10.7)	10 (7.0)	33 (8.8)
Other	3 (1.5)	5 (2.2)	6 (2.7)	14 (2.1)	1 (0.9)	2 (1.7)	4 (2.8)	7 (1.9)
Location, n (%)								
Inner Regional Australia	149 (74. 1%)	167 (73.6)	161 (71.6)	477 (73.1)	83 (74.8)	90 (75.0)	110 (77.5)	283 (75.9)
Outer Regional Australia	49 (24. 4%)	57 (25.1)	58 (25.8)	164 (25.1)	28 (25.2)	30 (25.0)	30 (21.1)	88 (23.6)
Remote Australia	3 (1. 5%)	3 (1.3)	6 (2.7)	12 (1.8)	0 (0.0)	0 (0.0)	2 (1.4)	2 (0.5)
Nicotine dependence, n (%)								
Low addiction	56 (30.3)	57 (27.0)	51 (25.0)	164 (27.3)	38 (37.6)	34 (30.9)	31 (23.7)	103 (30.1)
Moderate addiction	111 (60.0)	115 (54.5)	123 (60.3)	349 (58.2)	52 (51.5)	59 (53.6)	82 (62.6)	193 (56.4)
High addiction	18 (9.7)	39 (18.5)	30 (14.7)	87 (14.5)	11 (10.9)	17 (15.5)	18 (13.7)	46 (13.5)
Quitting intentions n (%)								
Will quit in next 30 days	93 (46.3)	99 (43.2)	103 (45.8)	295 (45.0)	55 (49.6)	50 (41.3)	75 (52.8)	180 (48.1)
Will quit in next 6 months	79 (39.3)	75 (32.8)	75 (33.0)	229 (35.0)	38 (34.2)	43 (35.5)	45 (31.7)	126 (33.7)
May quit in the future but not quit in next 6 months/ Never expect to quit/ Don't know	29 (14.4)	55 (24.0)	47 (20.9)	131 (20.0)	18 (16.2)	28 (23.1)	22 (15.5)	68 (18.2)

^a HSC: Higher School Certificate.^b TAFE: Technical and Further Education.

call (n = 106) or had read at least some of the written materials (n = 113).

3.1. Acceptability of real-time video counselling compared to telephone counselling

Among the 4-month survey respondents, 93.5 % (86/92) of video counselling participants and 96.2 % (102/106) of telephone counselling participants indicated that, it was very acceptable or acceptable for a smoking cessation advisor to contact them via video or telephone (Table 2). There was no significant difference between the video and telephone counselling groups in relation to the acceptability of the mode of delivering the support sessions.

3.2. Satisfaction with number and spacing of real-time video counselling sessions compared to telephone counselling sessions

As described in Table 2, 88 % (81/92) of video counselling participants who answered the satisfaction items and 93.4 % (99/106) in the telephone counselling group reported being very satisfied/satisfied with how the support calls were spaced out. There was no significant difference between the video and telephone counselling groups in terms of satisfaction with the spacing of the support sessions. Sixty-two percent (57/92) of video counselling participants and 76.4 % (81/106) of telephone counselling participants felt the number of calls received was ‘about right’. Furthermore, 26.1 % (24/92) of video counselling participants and 17.9 % (19/106) of telephone counselling participants felt the calls were too few. Only 3.3 % (3/92) in the video counselling group and 0.9 % (1/106) in the telephone counselling group felt the number of calls were too many while 8.7 % (8/92) of video counselling participants and 4.7 % (5/106) of telephone counselling participants did not know. Video counselling participants had significantly lower odds of reporting the number of calls were about right than telephone counselling participants (OR 0.50, 95 % CI 0.27–0.93).

3.3. Recommend support to friends or family to help them quit

Ninety percent (83/92) in the video counselling group and 98.1 % (104/106) in the telephone counselling group would recommend such support to friends/family to help them quit, while 58.4 % (66/113) in the written materials group would do so. Video counselling participants had significantly greater odds of recommending the support received to friends/family than the written materials participants (OR 6.57, 95 %CI 2.99–14.41). In contrast, video counselling participants had significantly lower odds of recommending the support received to friends/family than telephone counselling participants (OR 0.18, 95 %CI 0.04–0.85) (Table 2).

Table 2
Acceptability and satisfaction of video counselling, telephone counselling and written support.

Measure	Outcome of interest	Video N = 92 n (%)	Telephone N = 106 n (%)	Written N = 113 n (%)	Video vs Telephone		Video vs Written	
					Odds Ratio (95 % CIs)	p	Odds Ratio(95 % CIs)	p
Acceptability of smoking cessation advisor contact via video/telephone	Very acceptable/ acceptable	86 (93.5)	102 (96.2)	N/A	0.56 (0.15–2.07)	0.39	N/A	N/A
Satisfaction with spacing of video/ telephone sessions	Very satisfied /satisfied	81 (88.0)	99 (93.4)	N/A	0.52 (0.19–1.41)	0.20	N/A	N/A
Satisfaction with the number of calls	About right	57 (62.0)	81 (76.4)	N/A	0.50 (0.27–0.93)	0.03	N/A	N/A
Recommendation of video/telephone/written support to friends or family	Definitely would/ probably would	83 (90.2)	104 (98.1)	66 (58.4)	0.18 (0.04–0.85)	0.03	6.57 (2.99–14.41)	<0.001
Overall rating of support received	Excellent/very good/ good	85 (92.4)	104 (98.1)	68 (60.2)	0.23 (0.05–1.16)	0.08	8.04 (3.40–19.01)	<0.001

3.4. Overall rating of support received

Overall, 92.4 % (85/92) of video counselling participants and 98.1 % (104/106) of telephone counselling participants thought the support was excellent, very good or good compared to 60.2 % (68/113) of written materials participants. Video counselling participants had significantly greater odds of reporting that the support received was excellent, very good or good compared to the written materials group (OR 8.04, 95 %CI 3.40–19.01). There was no significant difference between the video counselling and telephone counselling participants in terms of the overall rating of support received (Table 2).

3.5. Helpfulness of real-time video counselling, telephone counselling and written materials

Participants in the video counselling group had significantly higher odds of reporting the support received helped a lot/a little in relation to motivation to try quitting (OR 3.88, 95 % CI 1.92–7.81), motivation to stay quit (OR 5.47, 95 % CI 2.77–10.81), coping with cravings or situations that make you want to smoke (OR 6.10, 95 % CI 2.99–12.45), motivation to try again if slipped up (OR 4.92, 95 % CI 2.41–10.06) and avoiding slip ups (OR 5.41, 95 % CI 2.78–10.55) than those in the written materials group (Table 3). Compared to the telephone counselling group, those who received video counselling had significantly lower odds of reporting the support helped a lot/a little with motivation to try quitting (OR 0.24, 95 % CI 0.07–0.76). There were no significant differences between these groups for the remaining four helpfulness items (Table 3).

3.6. Potential modifiers of acceptability and helpfulness outcomes

Participants had greater odds of reporting the support helped with motivation to quit, for video compared to written, if they had a university/tertiary (OR = 7.33, 95 % CI 2.32–23.21, p < 0.001) or HSC/Year12/TAFE education (OR = 11.76, 95 % CI 3.23–42.76, p < 0.001), but not Year 10 or less (OR = 1.35, 95 %CI 0.36–5.11, p = 0.66). The group by education interaction for the remaining helpfulness and acceptability outcomes was non-significant. The group by age, group by gender, group by quitting intention and group by location interaction for each of the acceptability and helpfulness outcomes was not significant.

4. Discussion

This is the first study to examine the acceptability of real-time video counselling for smoking cessation delivered to a rural and remote population at home or a place of their choice. On two of five acceptability outcomes, specifically satisfaction with number of calls and recommending support to family/friends, the video counselling group had significantly smaller odds of rating these favourably than the telephone counselling group. There were no between-group differences for the

Table 3
Helpfulness of video sessions, telephone sessions and written materials.

Helpfulness of support received	Video N = 92		Telephone N = 106		Written N = 113		Video vs Telephone		Video vs Written	
	Helped me a lot/a little n (%)	Helped me a lot/a little n (%)	Helped me a lot/a little n (%)	Helped me a lot/a little n (%)	Odds Ratio (95 % CIs)	p	Odds Ratio (95 % CIs)	p		
Motivation to try quitting	79 (85.9)	102 (96.2)	69 (61.1)	57 (50.4)	0.24 (0.07–0.76)	0.02	3.88 (1.92–7.81)	<0.001		
Motivation to stay quit	78 (84.8)	86 (81.1)	57 (50.4)	59 (52.2)	1.30 (0.61–2.75)	0.50	5.47 (2.77–10.81)	<0.001		
Coping with cravings or situations that make you want to smoke	80 (87.0)	95 (89.6)	59 (52.2)	59 (52.2)	0.77 (0.32–1.85)	0.56	6.10 (2.99–12.45)	<0.001		
Motivation to try again if you slipped up	80 (87.0)	94 (88.7)	65 (57.5)	55 (48.7)	0.85 (0.36–2.01)	0.71	4.92 (2.41–10.06)	<0.001		
Avoiding slip ups	77 (83.7)	93 (87.7)	55 (48.7)	55 (48.7)	0.72 (0.32–1.60)	0.42	5.41 (2.78–10.55)	<0.001		

other three items. In contrast, the video counselling group had greater odds of recommending support to family/friends and reporting that the support received was excellent/very good/good than the written materials group. In regards to the five helpfulness outcomes, the video counselling group had significantly smaller odds than the telephone counselling group of indicating the support helped with motivation to try quitting, but there were no between-group differences on the other four helpfulness items. In contrast, the video counselling group had significantly greater odds of reporting the support helped for all five helpfulness items compared to the written materials group.

The majority, 93.5 % indicated that real-time video communication technology was an acceptable mode of delivering smoking cessation support, 88.0 % were satisfied with the spacing of sessions, 90.2 % would recommend such support to friends/family and 92.4 % rated video counselling support as excellent, very good or good. Furthermore, more than 83 % of video counselling participants thought the support they received helped in relation to motivation to try quitting, motivation to stay quit, coping with cravings or situations that make you want to smoke, motivation to try again if slipped up and avoiding slip ups. These findings suggest that video counselling is an acceptable mode for providing smoking cessation support to rural and remote residents. Similarly, studies among women living with HIV (Kim et al., 2018), Korean American women (Kim et al., 2016), and rural residents that travelled to a clinic to use the video equipment (Richter et al., 2015) have reported that video counselling for smoking cessation is acceptable.

The features of acceptability and helpfulness for which video counselling participants rated the support less favourably than telephone counselling participants should be considered. Future research should examine strategies to enhance real-time video counselling in relation to the number of calls received, likelihood of recommending the support to family/friends and motivating participants to try quitting. The current findings are in contrast to a US study conducted with rural residents that found that the likelihood of recommending the support to family and friends was significantly higher in the video counselling group than in telephone counselling participants (Richter et al., 2015). A possible explanation for the contrasting findings may be attributed to the prior trial integrating the video counselling intervention into physician practices. This allowed participants to interact with staff before and after the video counselling which may have enhanced their experience of the video counselling intervention (Richter et al., 2015). The current study also found that people with Year 10 or less education were less likely to complete the 4-months survey and be motivated to quit smoking via real-time video counselling compared to those with higher education. Future research should examine the quitting strategies people with Year 10 or less education prefer and tailor smoking cessation interventions accordingly. This may help increase motivation to quit smoking and improve retention among this group.

Compared to the written materials group, video counselling participants had significantly greater odds of reporting the support favourably on all seven acceptability and helpfulness items. This is the first study to compare the acceptability and helpfulness of video counselling to written materials and illustrates that video counselling is perceived

more favourably than one form of smoking cessation support offered by quitlines. Given the consistency of the findings regarding the acceptability of video counselling for smoking cessation compared to written materials, quitline providers could consider incorporating real-time video counselling as another form of support.

This study had a number of limitations. Firstly, the acceptability items were in the 4-months post-baseline survey and it is possible the views of non-respondents may differ from respondents. Secondly, the study included only rural and remote areas of New South Wales, which may limit the generalisability of the findings to other populations and settings. Thirdly, examination of potential modifiers of the acceptability and helpfulness outcomes may have been limited by small numbers in the subgroups limiting the power to detect any differences. Fourthly, qualitative work was not undertaken to complement this research and provide a greater understanding about the reasons some features of acceptability and helpfulness differed between groups. Lastly, standards for implementing video-based counselling for smoking cessation may differ across countries, for example in the United States HIPAA standards would need to be met. The standards specific to each country need to be considered.

5. Conclusions

Overall, the findings suggested that real-time video counselling for smoking cessation is acceptable and well-received by rural and remote residents. However, the video counselling group were less likely than the telephone counselling group to rate the support favourably on three of 10 acceptability or helpfulness items. This suggests that further research is required to enhance these attributes of video counselling for smoking cessation.

Contributors

FT obtained funding for the study. JB, FT, CP, JW were involved in the study design and survey development. JB, FT, EB, AM contributed to the data collection. CL, FT and JB contributed to the statistical analysis. JB drafted the manuscript. All authors provided critical comment on the manuscript and approved the final manuscript.

Declaration of Competing Interest

The authors report no declarations of interest.

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