How and in whom does a brief motivational communication intervention improve medication adherence in adults with poorly controlled asthma and low adherence?

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INTRODUCTION

- Asthma is one of the most prevalent non-communicable diseases in the world, yet most patients do not adhere to their daily asthma medication, with adherence rates as low as 32%.
- Motivational communication (MC) is a patient-centered behaviour change counselling approach designed to increase autonomous motivation and confidence to engage in positive health behaviours, including medication adherence .
- We developed a brief MC intervention to increase asthma medication adherence.

OBJECTIVES

- In preparation for phase III randomized controlled trial, we conducted a proof-of-concept study to assess the proportion of patients meeting clinically significant targets for changes in motivation and self-efficacy as per the ORBIT model.
- We also assessed in whom these changes were strongest.

METHODS:

- Assessments were completed pre- and post-intervention:
  - Baseline, 6 & 12 months
- N = 54 adults:
  - 64% women
  - Poor asthma control (ACQ >.80)
  - Low adherence (Medication Possession Ratio [MPR] ≤50%)
- Thresholds for **minimally important differences** (MID):
  - autonomous motivation (TRSQ)
  - self-efficacy (PCS)
  - perceived autonomy support (HCCQ)
- **Success:** ≥70% of participants reaching ≥1 MID at either follow-up

PARTICIPANT CHARACTERISTICS:

Variable Mean (SD) or n (%)	Total (n=54)	Reached any MID at 6-months (n=28)	Did not reach any MID at 6-months (n=13)	Reached any MID at 12-months (n=28)	Did not reach any MID at 12-months (n=9)
Sociodemographics					
Age, years	51(16)	51 (15)	55 (15)	52 (14)	57 (16)
Female, n (%)	30 (57)	15 (54)	6 (46)	14 (50)	5 (56)
Employed (yes), n (%)	28 (61)	16 (64)	6 (65)	17 (65)	2 (33)
Education level (≥12 y), n (%)	32 (62)	15 (54)	8 (62)	18 (64)	5 (56)
Cohabitation (yes), n (%)	44 (82)	23 (82)	12 (92)	23 (82)	7 (78)
Clinical and functional profile					
Anti-leukotrienes, n (%)	12 (23)	4 (25)	1 (20)	3 (23)	2 (40)
Anti-rhinitics, n (%)	16 (30)	6 (38)	1 (20)	4 (31)	1 (20)
ICS adherence, MPR (%)	24 (26)	20 (19)	32 (34)	23 (22)	19 (32)
FEV1, % predicted	74 (28)	72 (19)	79 (28)	73 (22)	73 (22)
Atopic (yes), n (%)	39 (72)	20 (71)	7 (54)	20 (28)	6 (67)
Comorbid chronic condition (yes), n (%)	36 (67)	20 (71)	8 (62)	20 (71)	6 (67)
Comorbid psychiatric disorder (yes), n (%)	30 (56)	15 (71)	7 (54)	15 (54)	4 (44)
BMI, kg/m^2	29 (5)	29 (6)	30 (5)	28 (5)	32 (4)
Waist circumference, cm	101 (17)	105 (15)	103 (12)	105 (11)	101 (12)
Asthma duration, years	24 (17)	25 (18)	28 (18)	8 (12)	22 (19)
Bronchodilator use, number last week	7 (10)	9 (11)	5 (8)	4 (1)	5 (6)
Current smoking (yes), n (%)	10 (19)	7 (25)	0 (0)	5 (18)	0 (0)
ACQ scores	1.7 (1.1)	1.9 (1)	1.5 (1.1)	1.8 (0.8)	1.6 (1.1)
AQLQ scores	4.8 (1.1)	4.9 (0.9)	5 (1.4)	4.9 (0.9)	4.7 (1.5)
ASES scores	2.6 (0.8)	2.8 (0.7)	2.5 (1.1)	2.8 (0.8)	2.3 (1)

RESULTS:

- Most participants achieved at least one MID at 6 months (68%) and 12 months (76%), **achieving our proof-of-concept threshold.**
- More participants attained the MID for autonomous motivation at 6 (42%) and 12 months (51%) compared to autonomy support (42% and 41%) and self-efficacy (39% and 35%).

	% (n) at 6-month follow-up	% (n) at 12-month follow up
No MID	32	24
Any MID	68	76
Total	100 (41)	100 (37)
1 MID	32	40
2 MIDs	20	19
3 MIDs	17	16
Total	68 (28)	76 (28)

	% who reached it at 6-month follow-up	n	% who reached it at 12-month follow up	n
Autonomous motivation MID (4%)	41.46	17	51.35	19
Self-efficacy MID (7%)	39.02	16	35.14	13
Perceived autonomy support MID (3.6%)	41.46	17	40.54	15
Total		50		47

RESULTS:

No baseline characteristic was associated with an increased likelihood of reaching an MID.

6-months follow-up			
Predictor variables	**OR**	**95% CI**	
Sociodemographic variables			
Cohort	0.26	0.04	2.00
Age	0.94	0.85	1.05
Sex (female)	1.70	0.33	8.69
Unemployed	1.57	0.13	18.76
Education level (<12 years)	0.68	0.10	4.71
Cohabitation (no)	7.30	0.45	118.41
Clinical variables			
Cohort	0.19	0.03	1.13
Medical comorbidity (no)	0.64	0.13	3.29
Mood or anxiety disorder (no)	1.26	0.26	6.07
ACQ score†	2.59	0.86	7.80
AQLQ score†	0.87	0.25	3.03
ASES score†	2.17	0.52	9.06
Behavioural variables			
Cohort	0.41	0.07	2.40
Smoking (no)	0.00	0.00	>999.99 ‡
BMI, kg/m^2†	0.99	0.84	1.17
Bronchodilator use (# last week)†	1.01	0.91	1.13
Asthma profile and lung function			
Cohort	0.70	0.14	3.54
Atopic asthma (no)	0.46	0.09	2.43
Duration of asthma (years)†	1.00	0.95	1.05
FEV1, % predicted†	0.98	0.95	1.02

12-months follow-up			
Predictor variables	**OR**	**95% CI**	
Sociodemographic variables			
Cohort	1.99	0.19	20.57
Age	0.83	0.63	1.09
Sex (female)	1.24	0.15	10.21
Unemployed	5.04	0.06	420.88
Education level (<12 years)	1.20	0.12	11.83
Cohabitation (no)	0.87	0.06	12.85
Clinical variables			
Cohort	1.06	0.18	6.41
Medical comorbidity (no)	0.63	0.11	3.71
Mood or anxiety disorder (no)	0.55	0.10	3.07
ACQ score†	1.28	0.47	3.50
AQLQ score†	0.98	0.30	3.33
ASES score†	2.49	0.65	9.60
Behavioural variables			
Cohort	1.80	0.25	12.95
Smoking (no)	0.00	0.00	>999.99 ‡
BMI, kg/m^2†	0.92	0.76	1.12
Bronchodilator use (# last week)†	1.02	0.91	1.14
Asthma profile and lung function			
Cohort	1.42	0.24	8.27
Atopic asthma (no)	0.59	0.10	3.63
Duration of asthma (years)†	1.01	0.96	1.06
FEV1, % predicted†	0.10	0.96	1.04

CONCLUSION:

- The **proof-of-concept criterion was supported**, with 76% of patients attaining at least one MID by 12 months
- No specific patient characteristics were associated with increased odds of reaching an MID, suggesting any patient with asthma could benefit from it
- The MC intervention appears ready for phase III efficacy testing, however, given that no more than 51% achieved any MID, **strengthening may be warranted**
- Results lend support for the use of translational intervention development frameworks for behavioural interventions (i.e., ORBIT model)

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