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ORIGINAL RESEARCH

EDUCATING MEDICAL STUDENTS IN COUNSELLING OLDER ADULTS ABOUT EXERCISE: THE IMPACT OF A PHYSICAL ACTIVITY MODULE

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Abstract: *Background:* Exercise courses during medical school contribute to medical students' confidence in promoting physical activity to their patients. However, there is still a lack of uniform physical activity education across medical school curricula to equip medical students with the necessary skills and knowledge to counsel their patients about exercise. *Objective:* To determine the effects of a 1.5-hour physical activity module including a one-hour exercise tutorial combined with a 30-minute practical counselling session on senior medical students' perceptions of the importance of exercise and their perceived competence in advising older people about exercise. *Design:* Pre-post survey. *Setting:* University campus. *Participants:* 161 senior medical students taking part in the Queen Elizabeth Hospital Geriatric Medicine course in 2015 (control group) and 2016 (intervention group). *Measurement:* The modified Exercise and Physical Activity Competence Questionnaire (EPACQ) was administered before and after a 4.5-week Geriatric Medicine Course. Scores ranged from 1 (not important or competent) to 6 (very important or competent). The independent T-Test and repeated-measures ANOVA was used to determine differences between intervention and control group. *Results:* Medical students perceived exercise-related skills to be highly important (score ≥4) in both the intervention (4.85 ± 0.37) and control group (4.78 ± 0.67), pre-course. The overall perceived importance could not be significantly increased by the physical activity module (P=0.082). The physical activity module, however, improved medical students' perceived competence in six out of ten exercise-related skills, and increased their overall perceived competence in counselling older people about exercise (P<0.001). *Conclusion:* A 1.5-hour physical activity module improves senior medical students' perceived competence in counselling older people about exercise. This research proves that little teaching space is needed to impact positively on medical students' exercise counselling abilities.

Key words: Physical activity training, medical education, older adults, competence, medical students.

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Introduction

Exercise helps to maintain and restore muscle strength, and reduce the risk of falls and fractures in older people. Frailty, a geriatric syndrome prevalent in clinical practice, as well as falls and fractures threaten the independence of older people, and contribute to a reduced quality of life (2-4). Older people prefer to live in their own homes for as long as possible (5). Therefore, any strategy that might help older people achieve their goals should be actively supported.

Educational programs that ensure that graduating doctors are better placed to promote the uptake of exercise by older people might be one such strategy. Furthermore, with the ageing population, more comprehensive geriatric education programs in medical schools are required if a skilled medical workforce able to cater to the needs of older citizens is to be developed (6). And because older people tend to hold their doctors in high regard, doctors must play a key role in educating older patients about the importance of exercise, and encouraging them to participate in physical activity (PA) programs (2, 7).

In spite of its importance, exercise is not meaningly included in many undergraduate medical curricula (8). A recent review of US medical curricula, for example, suggests that over half of the medical students trained in the United States receive no formal education about exercise (9). Similar findings have also been noted in the United Kingdom (8). Many doctors, not surprisingly, cite the lack of education during medical school as the main barrier for them not counselling their patients about exercise (10).

Even when it is included in the curricula, there is a gap in the delivery of exercise-oriented courses. A recent evaluation of PA training in the curricula of Australian medical schools revealed that while most medical schools report including PA training in their curricula, the quality of content is variable, with key topics, such as the national strength recommendations, missing (11). We know that there is considerable heterogeneity in teaching methods, duration and placement within medical school curricula with regards to PA training (12). Research evidence as to what works and what does not is limited, especially where it relates to older individuals.

We have previously reported that a dedicated 4.5-week geriatric medicine course for senior medical students improved students' perception of the importance of prescribing exercise to older people (13). In relation to their perceived competence,

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however, although improvements were noted across all PA counselling-related skills, students still perceived not being competent in performing half of the listed skills following the course.

As a result of these findings, we introduced a PA module including a one hour exercise tutorial combined with a 30 minute practical counselling session. The aim of this study was to determine the effect of this course improvement on medical students' perceived importance and competence in advising older people about exercise.

Methods

Participants

All University of Adelaide 5th year medical students taking part in the Queen Elizabeth Hospital (TQEH) Geriatric Medicine course in 2015 (control group) and 2016 (intervention group) were invited to participate in this study. The Geriatric Medicine Course is a 4.5 week core component course of the 5th year medical teaching program and includes six rotations of 12 to 14 medical students per annum, resulting in approximately 80 students per year. We previously described the structure of the Geriatric Medicine Course in 2015 (13).

Consent and ethics

Students were advised that participation was voluntary and provided informed consent. The study received ethics approval from the University of Adelaide Human Research Ethics Committee (ethics approval number H-2015-001).

Physical activity module

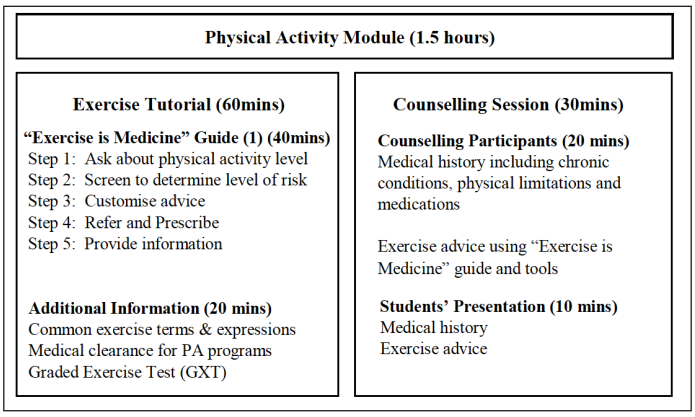
In 2015, there were no specific tutorials focused on exercise prescription, although medical students did have access to therapy programs, including a community based exercise class with the opportunity to interview older people about their exercise experience. Students were also encouraged to read the current exercise recommendations for older people and a research article on the effects of multi-component exercise interventions on frailty.

In 2016, a one hour tutorial was introduced to the course by an exercise physiologist and researcher at TQEH. The tutorial included topics relevant to exercise and older people, and was based on information and tools provided by Exercise is Medicine, a global health initiative managed by the American College of Sports Medicine (ACSM). The Exercise is Medicine initiative focuses on motivating health care professionals to include exercise when discussing treatment options with their patients (14). Core components of the one hour tutorial included information and tools on:

- How to assess the physical activity level of an older patient
- How to do a safety screening and identify risk factors
- How to motivate an older patient and determine their readiness to change
- How to write an exercise prescription
- How to provide medical clearance for exercise programs

Students had the opportunity to use the provided tools following a community-based exercise class, counsel the older participants about PA, and present their results to their tutors. The content of the PA module in this study is displayed in Figure 1.

Figure 1
Content of the physical activity module



Study questionnaires

Study questionnaires were handed out pre- and post-course. All returned forms were kept in a sealed envelope and only opened after the students had finished their course.

The study questionnaire included medical students' date of birth, gender, current physical activity level, and previous attendance of a geriatric medicine course.

The physical activity levels were assessed using the Godin Leisure Time Exercise Questionnaire (15, 16). The Exercise and Physical Activity Competence Questionnaire (EPACQ) was used to examine medical students' perceived importance and competence in prescribing exercise to older people (17). The EPACQ is a self-evaluation questionnaire including six skills related to exercise prescription with responses being graded on a Likert scale ranging from 1 (not important or competent) to 6 (very important or competent) (17). A score of ≥4 indicated perceived competence or importance and was considered as satisfactory. The EPACQ was modified to address older people and four additional items were included in relation to the risks and benefits of exercise, the referral to exercise and the identification of age-related limitations.

Statistical analyses

IBM SPSS Statistics Version 24 was used to perform the statistical analyses. Associations between a previous attendance of a geriatric medicine course and perceived importance and competence were determined using point biserial correlation. Associations between students' personal physical activity levels and perceived importance and competence were determined using the Pearson correlation coefficient. The independent

Table 1
Medcial students' baseline characteristics pre-course

Characteristic	Intervention Group (n=80)	Control Group (n=81)	P-Value IG vs CG
Age	23.39 ± 1.43	23.37 ± 1.48	0.917
Gender	41 ♂ (51.2%)	43 ♂ (53.0%)	0.881
Previous Course	n=27 (33.7%)	n=25 (30.9%)	0.657
Physical Active	n=60 (75.0%)	n=43 (81.1%)[1]	0.551
Overall Importance	4.85 ± 0.37	4.78 ± 0.67	0.737
Conducting a physical examination	5.01 ± 0.80	5.01 ± 0.98	0.997
Determining the maximum heart rate	4.22 ± 1.14	4.05 ± 1.15	0.391
Calculating the training heart range	4.22 ± 1.15	3.95 ± 1.13	0.124
Determining the body mass index	4.92 ± 0.85	4.74 ± 1.02	0.224
Determining the nutritional needs	5.08 ± 0.88	5.03 ± 1.05	0.622
Designing an exercise prescription	4.69 ± 1.14	4.44 ± 1.28	0.160
Explaining the benefits of exercise	5.23 ± 0.77	5.38 ± 0.70	0.195
Explaining the risks of exercise	5.18 ± 0.82	5.24 ± 0.83	0.607
Referring an older person to exercise	4.90 ± 0.88	4.99 ± 1.01	0.496
Identifying limitations to exercise	5.09 ± 0.72	5.05 ± 0.89	0.829
Overall Competence	2.94 ± 0.96	3.00 ± 0.64	0.870
Conducting a physical examination	2.13 ± 0.93	2.10 ± 1.00	0.856
Determining the maximum heart rate	3.09 ± 1.44	3.00 ± 1.41	0.695
Calculating the training heart range	2.23 ± 1.21	2.09 ± 1.15	0.452
Determining the body mass index	4.77 ± 1.22	4.73 ± 1.28	0.731
Determining the nutritional needs	2.25 ± 1.13	2.04 ± 0.99	0.200
Designing an exercise prescription	1.78 ± 0.93	1.85 ± 0.95	0.653
Explaining the benefits of exercise	4.10 ± 1.13	4.48 ± 0.96	0.023*
Explaining the risks of exercise	3.43 ± 1.10	3.78 ± 1.06	0.046*
Referring an older person to exercise	2.44 ± 1.23	2.62 ± 1.25	0.375
Identifying limitations to exercise	3.15 ± 1.06	3.43 ± 1.15	0.112

1. data was only available for 53 students; *significant ($p \leq 0.05$)

T-test and repeated-measures ANOVA was used to determine differences between the intervention group and control group pre- and post-course. Descriptive data is presented as mean ± standard deviation (SD). The significance level was set at $\alpha \leq 0.05$.

Results

Participants

The questionnaire was administered to 161 5th year medical students in 2015 (control group [CG]; n=81) and 2016 (intervention group [IG]; n=80). The mean age was 23.4±1.45 years and 52.5% of the students (n=84) were female. Over one-third of the students (n=52; 32.5%) had previously attended a geriatric medicine elective course and the majority of the students (n=103; 78.6%) were active according to the physical activity recommendations for healthy adults. Baseline characteristics between the two cohorts were no different except for the CG reported feeling more competent in explaining the risks (P=0.046) and benefits (P=0.023) of exercise to an older person compared to the IG (Table 1).

Students' perceived importance in prescribing exercise to older people

The previous attendance of a geriatric medicine course correlated positively (P=0.040; r=0.23) with medical students' perceived importance of being able to prescribe exercise to older people in the CG. No correlations could be found in the

Table 2
Effects of a physical activity module on medical students' importance

EPACQ Item		Intervention Group (n=80)	Important ≥4 n (%)		Control Group (n=81)	Important ≥4 n (%)	P-Value IG vs CG
Conducting a physical examination to approve exercise	Pre	5.01 ± 0.80	74 (92.5)	Pre	5.01 ± 0.98	75 (92.3)	0.056
	Post	5.32 ± 0.83	75 (93.8)	Post	5.03 ± 0.92	75 (92.3)	
	Change	0.3 ± 1.0		Change	0.0 ± 1.0		
	P-Value	0.005*		P-Value	0.913		
Determining the maximum heart rate for an older person	Pre	4.22 ± 1.14	57 (71.3)	Pre	4.05 ± 1.15	57 (70.4)	0.040*
	Post	4.75 ± 1.06	70 (87.5)	Post	4.19 ± 1.09	57 (70.4)	
	Change	0.5 ± 1.3		Change	0.1 ± 1.2		
	P-Value	<0.001*		P-Value	0.295		
Calculating the training heart range for an older person	Pre	4.22 ± 1.15	57 (71.3)	Pre	3.95 ± 1.13	56 (69.1)	0.238
	Post	4.77 ± 1.01	70 (87.5)	Post	4.28 ± 1.04	63 (77.8)	
	Change	0.6 ± 1.3		Change	0.3 ± 1.2		
	P-Value	<0.001*		P-Value	0.021*		
Determining the body mass index for an older person	Pre	4.92 ± 0.85	76 (95.0)	Pre	4.74 ± 1.02	72 (88.9)	0.931
	Post	5.52 ± 0.70	78 (97.5)	Post	5.33 ± 0.74	79 (97.5)	
	Change	0.6 ± 1.0		Change	0.6 ± 1.2		
	P-Value	<0.001*		P-Value	<0.001*		
Determining the caloric needs of an older person	Pre	5.08 ± 0.88	75 (93.8)	Pre	5.03 ± 1.05	73 (90.1)	0.656
	Post	5.24 ± 0.72	78 (97.5)	Post	5.26 ± 0.83	77 (95.1)	
	Change	0.2 ± 0.9		Change	0.2 ± 1.1		
	P-Value	0.107		P-Value	0.053		
Designing an exercise prescription for an older person	Pre	4.69 ± 1.14	68 (85.0)	Pre	4.44 ± 1.28	63 (77.8)	0.123
	Post	5.32 ± 0.76	77 (96.3)	Post	4.76 ± 1.26	69 (85.2)	
	Change	0.6 ± 1.2		Change	0.3 ± 1.4		
	P-Value	<0.001*		P-Value	0.038*		
Explaining the benefits of exercise to an older person	Pre	5.23 ± 0.77	75 (93.8)	Pre	5.38 ± 0.70	80 (98.8)	0.087
	Post	5.53 ± 0.70	77 (96.3)	Post	5.46 ± 0.59	80 (98.8)	
	Change	0.3 ± 0.9		Change	0.1 ± 0.8		
	P-Value	0.002*		P-Value	0.300		
Explaining the risks of exercise to an older person	Pre	5.18 ± 0.82	75 (93.8)	Pre	5.24 ± 0.83	79 (97.5)	0.163
	Post	5.51 ± 0.68	77 (96.3)	Post	5.39 ± 0.62	80 (98.8)	
	Change	0.3 ± 0.8		Change	0.2 ± 0.9		
	P-Value	<0.001*		P-Value	0.122		
Referring an older person to an exercise program	Pre	4.90 ± 0.88	73 (91.3)	Pre	4.99 ± 1.01	74 (91.4)	0.647
	Post	5.28 ± 0.75	76 (95.0)	Post	5.33 ± 0.72	78 (96.3)	
	Change	0.4 ± 0.9		Change	0.3 ± 0.9		
	P-Value	<0.001*		P-Value	0.001*		
Identifying age-related limitations to exercise in an older person	Pre	5.09 ± 0.72	76 (95.0)	Pre	5.05 ± 0.89	78 (96.3)	0.890
	Post	5.32 ± 0.76	76 (95.0)	Post	5.26 ± 0.74	79 (97.5)	
	Change	0.2 ± 0.8		Change	0.2 ± 0.9		
	P-Value	0.013*		P-Value	0.029*		
Overall importance	Pre	4.85 ± 0.37	73 (91.3)	Pre	4.78 ± 0.67	72 (88.9)	0.082
	Post	5.25 ± 0.28	77 (96.3)	Post	5.02 ± 0.57	78 (96.3)	
	Change	0.4 ± 0.6		Change	0.2 ± 0.1		
	P-Value	<0.001*		P-Value	0.001*		

IG. There was also no significant correlation between students' personal physical activity levels and their perceived importance in either CG or IG.

Before the course, overall students' perceived importance of being able to prescribe exercise to older people was high (score ≥4) in both the IG (4.85±0.37) and the CG (4.78±0.67). In regards to the proportion of the students, 91.3% (n=73 out of 80) of the IG and 88.9% (n=72 out of 81) of the CG perceived the PA related skills as important (score ≥4).

The PA module significantly improved medical students' perceived importance in nine out of ten skills, while only five out of ten skills significantly improved in the CG (Table 2).

Compared to the initial geriatric course, the PA module presented to the IG only significantly improved the perceived importance of determining the maximal heart rate of an older person (IG 4.75±1.06 vs CG 4.19±1.09; P=0.040).

Table 3
Effects of a physical activity module on medical students' competence

EPACQ Item		Intervention Group (n=80)	Competent ≥4 n (%)		Control Group (n=81)	Competent ≥4 n (%)	P-Value IG vs CG
Conducting a physical examination to approve exercise	Pre	2.13 ± 0.93	6 (7.5)	Pre	2.10 ± 1.00	9 (11.1)	0.001*
	Post	4.39 ± 0.94	68 (85.0)	Post	3.73 ± 0.97	54 (66.7)	
	Change	2.3 ± 1.2		Change	1.6 ± 1.1		
	P-Value	<0.001*		P-Value	<0.001*		
Determining the maximum heart rate for an older person	Pre	3.09 ± 1.44	31 (38.8)	Pre	3.00 ± 1.41	30 (37.0)	<0.001*
	Post	4.94 ± 0.94	74 (92.5)	Post	3.91 ± 1.24	54 (66.7)	
	Change	1.8 ± 1.6		Change	0.9 ± 1.3		
	P-Value	<0.001*		P-Value	<0.001*		
Calculating the training heart range for an older person	Pre	2.23 ± 1.21	11 (13.8)	Pre	2.09 ± 1.15	9 (11.1)	<0.001*
	Post	4.71 ± 0.92	73 (91.3)	Post	3.27 ± 1.18	32 (39.5)	
	Change	2.5 ± 1.4		Change	1.2 ± 1.4		
	P-Value	<0.001*		P-Value	<0.001*		
Determining the body mass index for an older person	Pre	4.77 ± 1.22	67 (83.8)	Pre	4.73 ± 1.28	66 (81.5)	0.889
	Post	5.51 ± 0.75	76 (95.0)	Post	5.49 ± 0.72	78 (96.3)	
	Change	0.7 ± 1.3		Change	0.8 ± 1.3		
	P-Value	<0.001*		P-Value	<0.001*		
Determining the caloric needs of an older person	Pre	2.25 ± 1.13	14 (17.5)	Pre	2.04 ± 0.99	9 (11.1)	0.747
	Post	4.11 ± 1.07	60 (75.0)	Post	3.96 ± 1.07	59 (72.8)	
	Change	1.9 ± 1.2		Change	1.9 ±1.3		
	P-Value	<0.001*		P-Value	<0.001*		
Designing an exercise prescription for an older person	Pre	1.78 ± 0.93	4 (5.0)	Pre	1.85 ± 0.95	5 (6.2)	<0.001*
	Post	5.10 ± 0.81	76 (95.0)	Post	3.81 ± 1.14	58 (71.6)	
	Change	3.3 ± 1.2		Change	2.0 ± 1.3		
	P-Value	<0.001*		P-Value	<0.001*		
Explaining the benefits of exercise to an older person	Pre	4.10 ± 1.13	54 (67.5)	Pre	4.48 ± 0.96	67 (82.7)	0.056
	Post	5.34 ± 0.64	78 (97.5)	Post	5.38 ± 0.66	81 (100.0)	
	Change	1.2 ± 1.2		Change	0.9 ± 1.0		
	P-Value	<0.001*		P-Value	<0.001*		
Explaining the risks of exercise to an older person	Pre	3.43 ± 1.10	34 (42.5)	Pre	3.78 ± 1.06	52 (64.2)	0.065
	Post	5.01 ± 0.76	76 (95.0)	Post	4.98 ± 0.92	76 (93.8)	
	Change	1.6 ± 1.4		Change	1.2 ± 1.2		
	P-Value	<0.001*		P-Value	<0.001*		
Referring an older person to an exercise program	Pre	2.44 ± 1.23	15 (18.8)	Pre	2.62 ± 1.25	18 (22.2)	0.003*
	Post	5.10 ± 0.80	76 (95.0)	Post	4.60 ± 1.05	70 (86.4)	
	Change	2.7 ± 1.4		Change	2.0 ± 1.4		
	P-Value	<0.001*		P-Value	<0.001*		
Identifying age-related limitations to exercise in an older person	Pre	3.15 ± 1.06	31 (38.8)	Pre	3.43 ± 1.15	40 (49.4)	0.032*
	Post	5.10 ± 0.72	78 (97.5)	Post	4.94 ± 0.74	79 (97.5)	
	Change	1.9 ± 1.3		Change	1.5 ± 1.3		
	P-Value	<0.001*		P-Value	<0.001*		
Overall competence	Pre	2.94 ± 0.96	4 (5.0)	Pre	3.00 ± 0.64	8 (9.9)	<0.001*
	Post	4.93 ± 0.42	78 (97.5)	Post	4.40 ± 0.62	66 (81.5)	
	Change	2.0 ± 0.8		Change	1.4 ± 0.7		
	P-Value	<0.001*		P-Value	<0.001*		

However, there was an upward trend for medical students' perceived importance in being able to conduct a physical examination (IG 5.32±0.83 vs CG 5.03±0.92; P=0.056), explain the benefits of exercise (IG 5.53±0.70 vs CG 5.46±0.59; P=0.087), as well as medical students' overall perceived importance (IG 5.25±0.28 vs CG 5.02±0.57; P=0.082).

After the amended course in 2016, 96.3% of the IG (n=77 out of 80) perceived PA-related skills in advising older people about exercise as important (score ≥4), exactly the same percentage as the CG (n=78 out of 81). This was an increase of 5.0% (n=4) in the IG and 7.4% (n=6) in the CG.

Students' perceived competence in prescribing exercise to older people

No correlations could be found between medical students' perceived competence and their previous attendance of a

geriatric medicine course or their personal physical activity levels for students in either the IG or the CG.

Before the course, overall medical students' perceived competence in prescribing exercise to older people was low (score <4) in both, IG (2.94±0.96) and CG (3.00±0.64). Only 5.0% (n=4 out of 80) of the students in the IG and 9.9% (n=8 out of 81) of the students in the CG perceived themselves as being competent (score ≥4) in advising older people about exercise.

The initial geriatric medicine course in the CG, as well as the PA module in the IG, significantly improved medical students' perceived competence across all ten skills (Table 3). However, despite these significant improvements, medical students in the CG still did not feel competent in performing half of the skills listed in the EPACQ (score <4), while students attending the PA module perceived themselves to be competent across all domains (score ≥4).

Compared to the initial geriatric course in the CG, the PA module significantly improved the students' perceived competence in six out of ten skills (P>0.050), as well as their overall perceived competence (P<0.001). There was also an upward trend for medical students' perceived competence in explaining the risks of exercise (IG 5.01±0.76 vs CG 4.98±0.92; P=0.065) to an older person.

After the course in 2016, containing the PA module, 97.5% (n=78 out of 80) of the students in the IG perceived themselves as being competent (score ≥4) in advising older people about exercise, an increase of 92.5% (n=74). Among the CG, 81.5% (n=66 out of 81) of the students perceived themselves being competent (score ≥4), an increase of 71.6% (n=58).

Discussion

The key finding from this study is that a short 1.5 hour PA module introduced to senior medical students, including a one hour exercise tutorial combined with a 30 minute practical counselling session increased medical students' perceived competence in prescribing exercise to older people.

The fact that PA training during medical school has a positive effect on medical students' perceived competence and confidence in advising their patients about PA has been shown for almost three decades (12, 18, 19). A recent systematic review examining the effects of PA training in medical school education confirmed positive changes in students' attitudes toward PA, their PA counselling knowledge and skills, and their confidence to counsel. However, a considerable heterogeneity of teaching methods, duration, and placement within the curriculum was noted and weak research designs limited an optimal evaluation of effectiveness (i.e., few pre-/post-intervention, and/or control comparisons) (12).

This study used an exercise theory tutorial combined with a practical session to not only provide the students with information about the background of PA counselling, but to also offer them practical experience to increase their confidence in advising older people about exercise. Similar teaching methods have been used effectively by other studies, like Mohler et al. (2010) and Bass et al. (2004) (20, 21). In regards to the content of the PA module, it was based on the Exercise is Medicine initiative, which includes quick and simple tools for health care professionals to assist with exercise prescription, as well as behavioural strategies and steps to ensure patients receive the most effective and personalized advice (14). Similar content, including the 5 A's (ask, advise, assess, assist, arrange) of the behavioural change model for chronically ill patients (22), for example, has also proved effective in other studies (12, 23).

In regards to the effectiveness of shorter PA interventions, Mohler et al. (2010) demonstrated that a two hour mandatory interactive educational offering improved medical students' attitudes and awareness of the importance of healthy ageing using an end-of-session evaluation form that was developed for the purpose of the study. The PA training included two theory sessions on PA combined with two counselling sessions between the students and a mentor (20). Bass et al. (2004) confirmed that a two hour interactive lecture and two 15 minute PA counselling practices with a patient significantly improved first year medical students' knowledge, attitudes and confidence in PA counselling using a 13 item pre- and post-knowledge questionnaire that was developed for the purpose of the study (21). In contrast, the present study did not only provide students a practical counselling session with elderly participants, but also distributed a validated pre- and post-questionnaire that had been used in several studies before (17, 24, 25). Our study has, however, only assessed for perceived competence and it remains to be determined if actual competence is improved through this course. It also remains to be determined if this perception is sustained and if it truly translates into changed clinical practice.

This study provides evidence using a rigorous study design (pre/post survey and control group) that only a small teaching space (1.5 hours) is needed to significantly improve medical students' perceived competence in prescribing exercise to older people. Considering the curriculum space for PA training in medical schools across Australia, for example, which was reported to be between 5.0 and 12.3 hours (11), the implementation of a short PA module as described in this study may be feasible.

The limitations of this study were that the survey was conducted at only one teaching campus and at one university, and so the results may not be generalizable.

Conclusion

Considering the benefits of exercise to older people, medical curricula need to ensure quality teaching content on this topic so that the needs of older people in our ageing society can be better met. This study provides evidence that a 1.5 hour PA module presented to senior medical students improves

their perceived competence in counselling older people about exercise. It is important that this research is replicated elsewhere to confirm generalisability. Future research should focus on the effectiveness of such programs in improving competency and sustaining these improvements to ensure changed clinical practice in the long term.

Conflict of interest: None declared by the authors.

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