ORIGINAL ARTICLE

Career Choice after Graduation among Physiotherapy Students Attending Public Universities in Malaysia

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ABSTRACT

Background and Objectives: Students always find it difficult to choose what they want to do after graduation despite having spent a solid three to four years of study and faced multiple challenges to graduate. There is evidence suggesting a great number of physiotherapy students chose not to work as a physiotherapist after graduation. Therefore, the objectives of this study were to determine the career choice after graduation and factors influencing career choices in physiotherapy students. **Methods:** A cross-sectional survey was undertaken on final-year undergraduate physiotherapy in four public universities offering physiotherapy courses in Malaysia. The questionnaire used in this study consisted of three main sections: demographic information, career choice, and factors influencing career choice after graduation. **Results:** Of 120 respondents, not even half (i.e., 57 [47%]) intended to work as a physiotherapist, as low as 26 (22%) intended to further study and as high as 37 (31%) were undecided or had no plan at all. The main factors that influenced their choice to work were previous working experience (15 [26%]), family members (11 [19%]), and the intention to serve the community (9 [16%]), while the choice to further study was influenced by the desire to further physiotherapy knowledge (19 [40%]) and enter a profession that requires a specific qualification (7 [15%]). Age, current study level (diploma/bachelor's degree), and previous educational background, were found to be associated with career choices (all $p < 0.05$). **Conclusion:** Majority of the final year bachelor's degree students intended to work while diploma students intended to further study. Age, current program, and previous education background, were highly associated with the students' career choice.

Keywords: After-graduation, career choice, physiotherapy students, Malaysia

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INTRODUCTION

Career is defined as a way of making a living, life-long process of learning, lifetime single profession which may include a series of positions or jobs, living and working experiences, leisure-time activities, hobby and education (Klover 1983). Career choice is an individual blueprint, and the process determining it requires knowledge, skill, and a specific educational program verified through a certificate or degree (Angela 2014; Humayon et al. 2018). A broad range of career opportunities are available for physiotherapy students: working in the public or private hospitals, healthcare centres, clinics, sports centres, nursing homes, special schools, health promotion agencies, or furthering study to become a lecturer or researcher. In Malaysia, two job posts being offered in the public healthcare sector are Medical Rehabilitation Officer (Physiotherapy) and Medical Rehabilitation Assistant (Physiotherapy). As of 2020, 1440 physiotherapists were working in the government facilities (Health Indicator 2021 2021). In the education sector, most of the physiotherapy educators and clinical instructors in public institutions and private institutions were Doctor of Philosophy (PhD), Master or bachelor's degree holders.

Several studies had explored undergraduate physiotherapy students' career choices after graduation in which the majority of the students chose to work rather than further study into higher education after completing their studies but the number of those who chose to further study after graduation varies greatly between countries (George et al. 2019; Ibikunle et al. 2013; Jain et al. 2011; Naidu et al. 2013; Narin et al. 2018; Ohman et al. 2001; Prendushi 2017). Specifically, in India and Albania, Jain et al. (2011) and Prendushi (2017) found that as high as 84% and 90% of their undergraduate physiotherapy students intended to further study after graduation. On the contrary, Narin et al. (2018) reported only 33% of undergraduate physiotherapy students in Turkey intended to further study after graduation. The differences in career choice after graduation among undergraduate physiotherapy students in previous studies were found to be related to factors such as career goal, appealing profession, job opportunities, financial, and social issues (George et al. 2019; Jain et

al. 2011; Naidu et al. 2013). To date, although there were at least seven studies that have been done investigating physiotherapy students' career choices after graduation, none of these studies were from Malaysia (Jain et al. 2011; Marques et al. 2018; Naiduet al. 2013; Narin et al. 2018; Ohman et al. 2002; Ohman et al. 2001; Prendushi 2017). Given that job opportunities, salaries, career growth, and even sociodemographic status differ between Malaysia and other countries, repeating similar study in Malaysian context may or may not produce similar findings. Therefore, the objectives of the present study were to determine: (1) the career choice after graduation and factors influencing career choices, and (2) the association between demographic factors and Cumulative Grade Point Average (CGPA) with the career choice after graduation among final year diploma and bachelor's degree physiotherapy students attending four public universities in Malaysia.

MATERIALS AND METHODS

Participants

Sample size was estimated by using the Raosoft calculator with margin of error, confidence level, and response distribution set at 5%, 95%, and 50%, respectively. Representative from each institution involved were contacted to identify the total number of final year physiotherapy students in each institution. From the total 173 final year physiotherapy students identified (International Islamic University Malaysia, Kuantan, or IIUM [n = 22], Universiti Teknologi Mara, Puncak Alam and Bertam, or UiTM [n = 107], Universiti Kebangsaan Malaysia, Bangi, or UKM [n = 17] and University of Sultan Zainal Abidin, Kuala Nerus, or UniSZA [n = 27], 120 was required. A quota sampling method was then used (Figure 1).

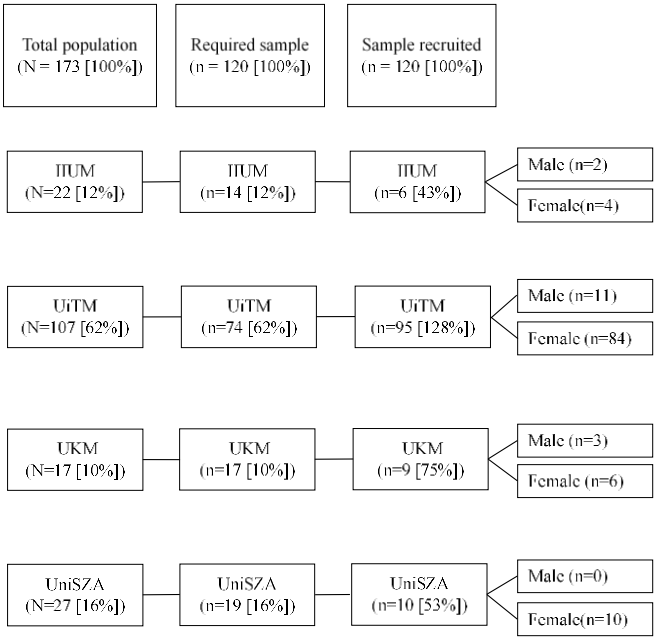

Figure 1: Number of total populations, required sample and recruited sample from each university. Data are represented as n (%).

Data collection

Data collection was conducted through an online platform (Google form application) where the link of the survey was distributed via the students' representative in each study setting using Whatsapp application. All participants were given one month to complete and return the questionnaire. Information such as email and contact number of the primary investigator were provided for enquiries.

Ethics approval

This study was approved by the the Human Research Ethics Committee of Universiti Teknologi Mara (approval ID: REC/10/2020). The inclusion criteria were full-time undergraduate physiotherapy students who were currently in final year of study.

Measurement

The questionnaire used in this study was adopted from Intention After Graduation Survey (IAGS 2016), Jain et al. (2011) and Ohman et al. (2001). The original questionnaire had been reviewed by professionals, evaluated in a pilot study, and tested on participants from previous studies for face and content validity (Jain et al. 2011; Ohman et al. 2001). The questionnaire consisted of seven sections. Section one (S1) was on the participant's information sheet and consent form. Section two (S2) consisted of 17 questions on demographic information, factors of choosing to study physiotherapy, and information sources about physiotherapy courses. Section three (S3) and four (S4) consisted of questions on career choice after graduation. Participants were directed into other three different sections (S5-S7) depending on their answers in S3-S4 to determine the factor influenced on each career chosen earlier in S4.

Data analyses

Data were analysed by using the IBM SPSS statistical software version 21. Descriptive statistical analysis was used to describe the demographic data, career choices, and factors influencing career choices. Association between demographic factors (age, ethnicity, house location, family size, birth order, household income, previous education) with the career choice after graduation were analysed by using chi-square test of independence (parametric) and Fisher's exact test (non-parametric). Association between CGPA (CGPA < 3.5 vs ≥ 3.5) with the career choice after graduation were analysed by using independent student t-test.

RESULTS

Based on Figure 1, a total of 120 students returned the survey form with response rate from UiTM (95 [128%]), UKM (9 [75%]), IIUM (6 [43%] and UniSZA (10 [53%]). Among the respondents, more than half (71 [59%]) were bachelor's degree students while 49 (41%) were diploma students. Further details of the survey respondents are described in Table I.

Table I: Details of the survey respondents (n=120)

Demographic	No. of respondents n (%)	Survey respondents	
		Diploma, n (%)	Degree, n (%)
Gender			
Male	16 (13.3)	5 (4.2)	11 (9.2)
Female	104 (86.7)	44 (36.7)	60 (50.0)
Age, Mean (SD)	21.6 (1.74)	20.4 (1.72)	22.5 (1.15)
House location			
Urban	65 (54.2)	25 (20.8)	40 (33.3)
Rural	55 (45.8)	24 (20.0)	31 (25.8)
Family size			
Less than 5	39 (32.5)	12 (10.0)	27 (22.5)
More than 5	81 (67.5)	37 (30.8)	44 (36.7)
Birth order			
Oldest child	21 (17.5)	11 (9.2)	10 (8.3)
Middle/youngest	99 (82.5)	38 (31.7)	61 (50.8)
Average family income (RM)			
Below 2,000	41 (34.2)	15 (12.5)	26 (21.7)
2,001 – 4,001	33 (27.5)	14 (11.7)	19 (15.8)
4,001 – 6,000	12 (10.0)	5 (4.2)	7 (5.8)
6,000 above	34 (28.3)	15 (12.5)	19 (15.8)
Previous level of education			
Diploma	32 (26.7)	-	32 (26.7)
Foundation	18 (15.0)	-	18 (15.0)
Matriculation	21 (17.5)	-	21 (17.5)
SPM (Sijil Pelajaran Malaysia)	48 (40.0)	48 (40.0)	-
Pre-Diploma	1 (0.8)	1 (0.8)	-
Scholarship			
Yes	32 (26.7)	10 (8.3)	22 (18.3)
No	88 (73.3)	39 (32.5)	49 (40.8)
Clinical placement			
Yes	109 (90.8)	38 (31.7)	71 (59.2)
No	11 (9.2)	11 (9.2)	-
Family member/relative in PT			
Yes	7 (5.8)	2 (1.7)	5 (4.2)
No	112 (93.3)	47 (39.2)	65 (54.2)
CGPA			
Mean (SD)	-	3.4 (0.3)	3.5 (0.3)
Below 3.5	61 (57.5)	27 (25.5)	34 (32.1)
Above 3.5	-	3.4 (0.3)	3.5 (0.3)

Data are presented as n (%) unless otherwise stated. Abbreviations: CGPA, cumulative grade point average.

Career choice after graduation

Over two-thirds (83 [69%]) of the survey respondents have a certain plan on what to do after graduation with 57 (47%) intended to work, 26 (22%) intended to further study while the rest were uncertain and no plan at all (34 [28%] and 3 [3%]). Respondents who were uncertain or had no plan at all after graduation were then further asked for their opinion to continue into higher education and only 22 (18%) would consider the option.

Among the 57 respondents that intended to work after graduation, 12 (21%) and 45 (79%) were diploma and bachelor's degree respondents respectively. Most (50 [88%]) of them intended to work as a physiotherapist in Malaysia while 3 (5%) intended to work abroad and 4 (7%) were undecided where to work. Details of the working preferences of the respondents were further described in Figure 2.

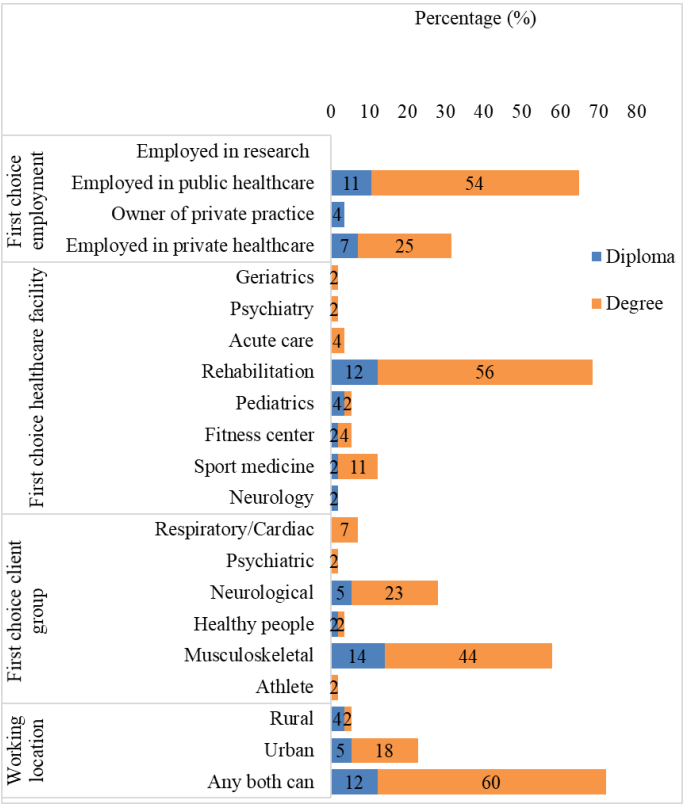

Figure 2: Details on the working preferences by respondents who intended to work after graduation (n=57)

There were 48 respondents, of which 35 (73%) diploma and 13 (27%) bachelor's degree respondents who intended to further study after graduation, into bachelor's degree and postgraduate program, respectively. Most of the respondents (39 [81%]) chose full time study while 9 (19%) chose part time study. Among the top five specialized areas of interest were musculoskeletal (23%), cardiorespiratory (15%), neurology (15%), paediatric (15%), and geriatric (15%). Among the reasons of choice were passion and enjoyment in the field of interest.

Factors that influenced career choice after graduation

Three main factors that influenced the respondents' choice to work after graduation were working experience (15 [26%]), family members (11 [19%]), and desire to serve the community (9 [16%]). Three main factors that influenced the respondents' choice to further study after completing their current studies were to specialize in a particular area/skill (19 [40%]), to enter a profession with specific requirements (7 [15%]), and to further undergraduate knowledge (7[15%]).

Association between demographic factors and CGPA with career choices after graduation

The association between demographic factors and CGPA with career choices after graduation was analysed from 83 respondents who have initially planned their career choices after graduation. Based on Table IIa and Table IIb, the respondent's current program [$X^2(1, n = 83) = 26.585$, $p < 0.001$], age [$t(81) = 16.83$, $p < 0.001$], and previous education program [$X^2(3, n = 83) = 26.826$, p

< 0.001] were found to be associated with the career choices after graduation. Gender (p > 0.05) was found to be not statistically significant with the career choices after graduation.

Table IIa: Association between demographic factors and career choices (n=83)

Demographic	Career choice		χ^2 statistic (df)	*p-value*
	Work n (%)	Further study n (%)		
Current program				
Diploma	12 (36.4)	21 (63.6)	26.585 (1)	<0.001 [a]
Bachelor Degree	45 (90.0)	5 (10.0)		
Gender				
Male	44 (63.8)	25 (36.2)	-	0.054[b]
Female	13 (92.9)	1 (7.1)		
Ethnicity				
Malay	54 (67.5)	26 (32.5)	-	0.548[b]
Non-Malay	3 (100.0)	-		
House location				
Urban	29 (63.0)	17 (37.0)	1.521 (1)	0.217[a]
Rural	28 (75.7)	9 (24.3)		
Family size				
Less than 5	20 (64.5)	11 (35.5)	0.398 (1)	0.528[a]
More than 5	37 (71.2)	15 (28.8)		
Birth order				
Oldest	11 (57.9)	8 (42.1)	1.331 (1)	0.249[a]
Middle/youngest	46 (71.9)	18 (28.1)		
Household monthly income (RM)				
Below 2,000	19 (76.0)	6 (24.0)	2.141 (3)	0.544[a]
2,001 – 4,001	17 (73.9)	6 (26.1)		
4,001 – 6,000	6 (60.0)	4 (40.0)		
Above 6,000	15 (60.0)	10 (40.0)		
Previous education program				
SPM	12 (36.4)	21 (63.6)	26.826 (3)	<0.001 [a]
Foundation	12 (92.3)	1 (7.7)		
Matriculation	12 (100.0)	0 (0.0)		
Diploma	21 (84.0)	4 (16.0)		
Scholarship				
Yes	18 (75.0)	6 (25.0)	0.628 (1)	0.428[a]
No	39 (66.1)	20 (33.9)		
Clinical placement				
Yes	56 (76.7)	17 (23.3)	-	<0.001 [b]
No	1 (10.0)	9 (90.0)		
Relatives in the physiotherapy profession				
Yes	4 (66.7)	2 (33.3)	-	1.000[b]
No	53 (68.8)	24 (31.2)		

Data are presented as n (%) unless otherwise stated. [a] Pearson Chi-Square test; [b] Fisher's Exact test.

Table IIb: Association between age and CGPA with career choice (n=83)

Demographic	Career choice		Mean diff. (95% CI)	t-stats (df)	*p-value*
	Work Mean (SD)	Further study Mean (SD)			
Age	22.8 (0.87)	19.4 (0.84)	3.43	22.8 (0.87)	19.4 (0.84)
CGPA	(3.02, 3.83)	16.83 (81)	<0.001[a]	(3.02, 3.83)	16.83 (81)

[a] Independent t-test

DISCUSSION

The present study found that not more than half (47%) of the undergraduate physiotherapy students in Malaysia chose to work while few chose to further study after graduation. With regard to the level of undergraduate study, most of the diploma respondents intended to further study while the bachelor's degree respondents intended to work after graduation. These study results were aligned with George et al. (2019), Naidu et al. (2013) and Narin et al. (2018) where undergraduate physiotherapy students in Saudi Arabia, South Africa, and Turkey chose to work with only a few chose to further into postgraduate study. Gotlib et al (2012) found a different career choice in six European countries where a majority of the undergraduate physiotherapy students in Latvia and Czech chose to work, the United Kingdom chose to further into postgraduate study only, and Poland, Spain, and Malta chose to further into postgraduate study while working after graduation. Prendushi (2017) also found a similar finding to Gotlib et al. (2012) as a majority of the undergraduate physiotherapy students in Albania also chose to further into the postgraduate study while working after graduation.

Most of the respondents who intended to work as a physiotherapist in Malaysia was parallel to Jain et al. (2011) and Janaudis-ferreira et al. (2016) as undergraduate physiotherapy students in India (59%) and Canada (96%) also wanted to work as physiotherapists in their own countries, respectively. Jain et al (2011) stated that the factors that influenced the undergraduate physiotherapy students to work in their own country were the career opportunities and the increasing role of physiotherapists in their healthcare system. Based on the Ministry of Health Malaysia data, the ratio for Malaysian physiotherapists was increased by the year 2018 to 2019 from 1: 22,790 to 1: 22,864 per population (Health Human Resources 2018 (as of 31 December); Health Fact 2019: References Data for 2018 2019; Ministry of Health Malaysia 2020). The WCPT physiotherapy: population ratio in Malaysia is still lower when compared to other countries in the Asia Pacific Western region such as Australia (14.3: 10,000), Hong Kong (4.8: 10,000), and Singapore (3.6: 10,000) (World Physiotherapy 2021). The annual number of clients' admission into government hospitals in Malaysia for physiotherapy rehabilitation service were also increased by the year 2018 to 2019 from 2,795,331 to 2,860,850, the third highest after child and antenatal client's admission in the government hospitals (Ministry of Health Malaysia 2020). This difference in the physiotherapist ratio per population and the increased number of clients' admission for physiotherapy rehabilitation in Malaysia could be an indicator of the need for physiotherapists to fulfil the demand for human resources within the country.

For career choice to further study after graduation, only a small number of bachelor's degree respondents (6%) intended to further into postgraduate study, despite this survey was conducted during the peak of the COVID-19 pandemic where job offers have been low. However, this is not the issue for Malaysian physiotherapy students alone as Narin et al. (2018) also reported a similar finding in which as high as 67% of the bachelor's degree

physiotherapy students in Turkey were not interested to further into postgraduate study. On the other hand, these findings were in contrast with Amin et al. (2020), Fabunmi et al. (2020), and Jain et al. (2011) as they reported most of Pakistan (78%), Nigeria (94%), and India (90%) bachelor's degree physiotherapy students were interested to further into postgraduate study.

Furthermore, diploma respondents who intended to further study into bachelor's degree program for entering a profession with a specific requirement could be related to the Allied Health Profession Act 2016 (Act 774) (Law of Malaysia 2016). Act 774 seeks to enforce the registration and regulate the practice of the allied health profession in the country (Atikah 2021). The act was currently postponed as the council members were still reviewing and refining the policy and eligibility standard for the registration as allied health profession practitioners (Atikah 2021). For now, the minimal requirement to practice as a physiotherapist in Malaysia is still diploma level (World Physiotherapy 2021). However, in the future when Act 774 is in full enforcement, the minimal requirement to practice as a physiotherapist would be bachelor's degree level. Therefore, this could be in part explained why many of the diploma respondents wanted to pursue study into bachelor's degree program.

Factors that influenced career choice after graduation

Most of the respondents who chose to work after graduation was influenced by previous working experience, family members, and wanted to serve the community while respondents who intended to further study after graduation were influenced to enhance their physiotherapy knowledge and enter a profession with a specific requirement. Career goal was found to be the fourth factor that influenced the respondents in both career choices. These results differ from a study by George et al (2019) as they found that career goal was the main factor that influenced the undergraduate health science students in Saudi Arabia choices to work or study after graduation. Contrary to expectation, there was scarce literature found on the factors that influence career choice to work after graduation for undergraduate physiotherapy students. A likely explanation for this was that many of the previous studies were more focusing on factors students in choosing to study physiotherapy, choices of the working institution, working location, and specialized physiotherapy area to work in.

For the factors that influenced respondents' choice to further study after graduation, there were slightly different findings from Gotlib et al. (2012) and Qamar et al. (2017) as many undergraduate physiotherapy students in Europe and Pakistan chose to further study solely because either they wanted to increase the job opportunities or having profitable careers that provide better remuneration. The difference between these findings can be explained through the level of undergraduate students in these studies. In Gotlib et al. (2012) and Qamar et al. (2017), bachelor's degree students were recruited while the current study recruited diploma and bachelor's degree students. Furthermore, many of the respondents that chose to further study after graduation in the current study were the diploma respondents. Therefore, there could be different standpoints between diploma and bachelor's degree students. However, it was not the case for Malaysian physiotherapy students as both stated that they wanted to further study to enhance their physiotherapy knowledge in a particular area. Increased job opportunities and gaining better income were the fifth and sixth factors influencing their choice to further study after graduation.

Association between demographic factors with career choice

Another possible explanation on the significant difference of career choice after graduation can be explained also through their age, and previous level education. Bachelor's degree students spent longer time than the diploma students. Estimated time spent for diploma students to complete their study was at least three years while for bachelor's degree students, they need at least four years for those from Matriculation and Foundation and six to seven years for those from diploma graduates to complete their studies from their age of 17 (SPM leavers). Therefore, students' age and duration to complete their undergraduate studies can be related to the lack of motivation to further into postgraduate study among bachelor's degree respondents while the diploma respondents can go into bachelor's degree program for another four more years.

There were several limitations in this study. Firstly, this study only takes students in public institutions and does not include private institutions to represent all of the undergraduate physiotherapy students in Malaysia. Second, the birth order (eldest, middle, and youngest child) of the respondents was unable to determine based on the number of family sizes. Third, more than half of the survey from returned were from UiTM (95 [79%]) then followed by UniSZA (10 [8%]), UKM (9 [8%]), and IIUM (6 [5%]) students that lead the results to be biased towards the university that participated the most. From quota sampling, only 74 respondents were needed from UiTM students. However, as the survey form were distributed through representative from each institution, we had received 95 respondents (128%) from UiTM within one-month period of data collection which was beyond of our control. Last, this study used a cross-sectional study design where only one-time measurement was undertaken which were unable to measure the changes in career choice from beginning till final year of study in physiotherapy which is an interesting gap for future studies.

Despite those limitations, the findings from this study facilitate discovering and understanding the career choices after graduation and factors influencing undergraduate physiotherapy students in Malaysia that, to our knowledge, have never been studied yet. These findings can benefit other physiotherapy students and secondary school students in Malaysia to understand

what most physiotherapy students plan in their future indertaking. This study may benefit Malaysia's institutions or organizations in developing more career development opportunities for the physiotherapy profession to meet the demand for human resources.

CONCLUSION

Bachelor's degree physiotherapy students were more intent to work because of their working experience, family, and wanted to serve the community. Diploma physiotherapy students mainly intended to further study into higher education as they wanted to further their physiotherapy knowledge and enter a profession with a specific requirement. Age, current program, and previous education background, were associated with the students' career choice.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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