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The self-reported factors that influence Australian physiotherapists' choice to promote non-treatment physical activity to patients with musculoskeletal conditions

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ABSTRACT

Objectives: To determine the factors that influence physiotherapists' choice to promote non-treatment physical activity to patients with musculoskeletal conditions.
Design: Cross sectional survey.
Methods: A national, online self report survey was targeted at Australian registered physiotherapists primarily treating patients with musculoskeletal conditions in private practice and outpatient settings. Likert scale questions were used to measure the factors influencing non-treatment physical activity promotion by physiotherapists.
Results: Two hundred and sixteen full responses were received. Most (56.6%) respondents irregularly promoted non-treatment physical activity, whereas 43.4% always promoted non-treatment physical activity. Promotion of non-treatment physical activity was bivariately associated with respondents' own physical activity level ($x^2[2] = 7.670$, $p = 0.022$) and exercise science education ($x^2[1] = 4.613$, $p = 0.032$). Multivariable analysis identified that Knowledge (knowing how to promote non-treatment physical activity) (OR = 1.60, 95%CI 1.026–2.502), Goals (other patient problems are more important) (OR = 0.62, 95%CI 0.424–0.897) and Innovation (compatibility of non-treatment physical activity promotion with the clinical environment) (OR = 1.75, 95%CI 1.027–2.985) were significantly and independently associated with non-treatment physical activity promotion.
Conclusions: The majority of surveyed Australian physiotherapists irregularly promoted non-treatment physical activity. Lack of knowledge of how to promote non-treatment physical activity, prioritising other patient problems before non-treatment physical activity promotion and using promotion methods that are not compatible with current practice might reduce non-treatment physical activity promotion frequency by physiotherapists.

1. Introduction

Physical inactivity is considered the fourth leading risk factor for global mortality and has negative implications for the progression of non-communicable disease and poor general health.[1] Physical inactivity is responsible for 6–10% of the burden of disease from long-term health conditions like type 2 diabetes, coronary heart disease, and breast and colon cancer.[2]

To be considered physically active, adults (aged 18–64 years old) must achieve 75–150 min of vigorous intensity activity or 150–300 min of moderate intensity activity weekly, or an equivalent combination of both, as well as strengthening activities for all major muscle groups twice weekly.[3] Self-reported data suggests that almost half of Australian adults (44.5%) are not physically active,[4] which is greater than the proportion of inactive adults worldwide (31.1%).[5]

Nearly half of adults who receive treatment for musculoskeletal conditions in Australian ambulatory clinics self-report not meeting the physical activity (PA) guidelines.[6] Australian physiotherapists

Abbreviations: DIBQ, Determinants of implementation behaviour questionnaire; NTPA, Non-treatment physical activity; PA, Physical activity; TDF, Theoretical domains framework.

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are responsible for treating musculoskeletal conditions but also for promoting health[7] and can successfully help patients increase their PA levels.[8] It is important that physiotherapists focus on improving PA levels and general health while treating patients with musculoskeletal conditions.

Physiotherapists are expected to have the skills to promote PA for the purposes of improving and maintaining general health, rather than to only treat musculoskeletal conditions.[9,10] This type of PA promotion is called non-treatment physical activity (NTPA) promotion.[11] Huijg et al.[12] used 18 domains of behaviour to comprehensively identify the factors influencing PA promotion by physiotherapists in the Netherlands. They reported that Beliefs about Capability, Behavioural Regulation, Knowledge and Nature of the Behaviour determine if a physiotherapist will deliver a PA intervention with high fidelity (e.g. by following the guidelines completely and with high quality).[12] It is important to use these 18 domains to identify the factors influencing Australian physiotherapists' decision to promote NTPA to patients with musculoskeletal conditions. Knowing this information will inform the design of interventions that can be used to improve NTPA promotion by physiotherapists within the Australian clinical context.

This study aimed to identify the factors that influence Australian physiotherapists' decision to promote NTPA, or not, to patients with musculoskeletal conditions in private practice and outpatient settings.

2. Methods

A cross-sectional self-report study design was used. Australian physiotherapy clinics were contacted by telephone and email and asked to share an online survey link with employees. Advertisements were also placed on social media platforms (e.g. Facebook and Twitter) and within professional association email news lists. Respondents were incentivised to participate by being offered the choice of receiving one $AU20 gift card or being entered into a draw to win one of several $AU200 gift cards. The incentive was provided upon completion of the full survey.

The survey comprised 65 questions (Supplement A) delivered using an online software program (Qualtrics, Provo, UT) and was available from July 2016 to April 2017. Responses were measured using 5-point Likert scales (e.g. strongly disagree — strongly agree). The survey commenced with demographic questions about the respondent's age, sex, PA level, work setting, clinical experience, number of patients treated each week, additional education (e.g. in psychology), consultation time and how often they promoted NTPA. This was followed by a series of questions used to establish the factors influencing their choice to promote NTPA or not.

Questions about the factors influencing NTPA promotion were chosen from the validated Determinants of Implementation Behavior Questionnaire (DIBQ) designed by Huijg et al.[13] The questions within the DIBQ are based on the 18 behavioural domains from the theoretical domains framework (TDF). These domains cover the main domains (e.g. Knowledge) of behaviour (e.g. NTPA promotion).[12,14] The questions were modified to ensure questions were interpreted as intended by piloting the survey with 15 physiotherapists. Several questions were also removed to shorten the survey (Supplement B).

Each of the 18 behavioural domains contributed between two and six questions to the survey. The internal consistency of each domain ranged from $\alpha = 0.587$ (Domain: Patient) to $\alpha = 0.897$ (Domain: Nature of the Behaviour) and 14 of the 18 domains had, at least, acceptable internal consistency ($\alpha > 0.70$) (Supplement C) as per the criteria defined by L'insalata et al.[15] Corrected item-total correlation values were above 0.305 for all but one domain (Domain: Social Influences), signifying 17 of the 18 domains had at least good internal consistency (between 0.30–0.70) as per the criteria defined by Ferketich[16] (Supplement C).

This survey formed the first part of a national survey that also identified the behaviour change techniques physiotherapists use to promote NTPA. The entire survey was expected to take 25–30 min to complete.

Ethics approval was obtained from the Federation University Australia Human Research Ethics Committee (project number B16-026) prior to the study. Physiotherapists who were registered to practice physiotherapy in Australia, and were currently primarily treating patients with musculoskeletal conditions in private practice or outpatient settings, were included. Physiotherapists practicing less than weekly, not seeing patients with musculoskeletal conditions or working in hospital inpatient services were detected by the responses they provided in the survey and excluded.

The number of physiotherapists across Australia who were likely to meet the inclusion criteria was unknown, making a priori power analysis challenging. There were 26,901 practicing physiotherapists in Australia as of December 2015.[17] A desired sample size of 380 was calculated using 26,901 as the number of practicing physiotherapists, a confidence level of 0.95, an estimated true proportion of 0.5 and a precision of 0.05.

Descriptive analysis was used to report frequencies. Responses to statements from across the 18 behavioural domains were categorised into 'disagree/strongly disagree', 'neither agree nor disagree' and 'agree/strongly agree' options. Scoring of question options was reversed if disagreeing with the statement indicated a positive response. All data were included in the analysis and missing data were removed pairwise. Biivariable (chi-square and spearman's rho) analyses were used to examine the unadjusted association between NTPA promotion and categorical data.

Multivariable logistic regression analysis, with the dependent variable being NTPA promotion (always/irregularly) and independent variables including demographic variables (e.g. respondents' own PA level) and behavioural domain variables (e.g. Knowledge), was used to determine the factors independently associated with NTPA promotion.[18] A total mean score was calculated for each of the 18 behavioural domains used in the regression model. Each mean was calculated by averaging the total score from the individual 5-point Likert scale items specific to each domain. Associated odds ratios and 95% confidence intervals were calculated. Thus, the model was used to identify the odds of physiotherapists promoting NTPA.

Variables demonstrating a bivariable association of $p \leq 0.2$ with NTPA promotion were entered into the regression model at the first step (Supplement D). A $p \leq 0.25$ has been previously recommended; however, a more conservative p-value was chosen due to the final sample size.[19] Correlations between variables included in the first step were checked. No correlation coefficients were ≥ 0.7 and so no variables were considered highly correlated and removed from the model.

Backwards elimination was used to reduce the model until it contained the least number of variables that had an acceptable goodness of fit (Hosmer–Lemeshow test) and the highest overall percent of correct data classification.[18] Data were analysed using IBM SPSS Statistics 24.0. Significance was set at $p < 0.05$.

3. Results

Two hundred and sixteen respondents (44%) completed the full survey. Most respondents were physically active, aged between 25–34 years and female (Table 1). Most of the respondents saw more than 26 patients per week, had been practicing physiotherapy for over 15 years and worked in private practice. More than half of

Table 1
Demographic information of the 486 Australian physiotherapists who opened the national survey about their NTPA promotion practices.

Variable (response number)		n	%
Age (n = 308)	18–24	35	11.4
	25–34	151	49.0
	35–44	54	17.5
	45–54	47	15.3
	55–64	18	5.8
	65–74	3	1.0
Sex (n = 308)	Female	190	61.7
	Male	118	38.3
Work setting (n = 295)	Private practice	234	79.3
	Outpatients	61	20.7
Patients treated weekly (n = 306)	1–5	6	2.0
	6–15	31	10.1
	16–25	47	15.4
	26+	222	72.5
Years practicing physiotherapy (n = 308)	0–2	60	19.5
	3–5	70	22.7
	6–10	68	22.1
	11–15	37	12.0
	16+	73	23.7
Exercise science education[a] (n = 285)	Yes	138	46.8
	No	147	49.8
Health promotion education[a] (n = 271)	Yes	78	26.4
	No	193	65.4
Psychology education[a] (n = 278)	Yes	111	37.6
	No	167	56.6
PA level (n = 295)	Active[b]	128	43.4
	Half active[c]	106	35.9
	Inactive	61	20.7
Frequency of NTPA promotion (n = 295)	Always[d]	128	43.4
	Irregularly[d]	167	56.6

Notes: NTPA = Non-treatment physical activity. PA = Physical Activity. % = percentage that does not include missing cases.

[a] 'Unsure' results not reported.

[b] Defined as meeting the minimum recommended physical activity level.

[c] Meeting recommended levels of cardiovascular OR strength activity.

[d] The 'always' category is comprised of the 'all of the time' option, whereas the 'irregularly' category is comprised of all other options (never, rarely, sometimes, often).

the respondents irregularly promoted NTPA to patients and did not have additional health-specific education. There were similar percentages of males and females (43.0% vs. 43.6%) always promoting NTPA.

Most respondents agreed with statements from 16 of the 18 behavioural domains (Table 2). However, most respondents disagreed with statements from two domains. One was the Negative Emotions domain, suggesting respondents do not feel negatively about promoting NTPA. The second was the Socio-political Context domain, suggesting respondents do not feel they get adequate support from government and health insurance agencies to promote NTPA. A detailed outline of responses to all statements is provided in Supplement E.

Respondents' PA level ($x^2[2] = 7.670$, $p = 0.022$) and having exercise science education ($x^2[1] = 4.613$, $p = 0.032$) was associated with NTPA promotion frequency. Most respondents who always promoted NTPA were physically active themselves (respondents always promoting NTPA: Active = 65, 22.0%; partially meeting guidelines [half active] = 45, 15.3%; inactive = 18, 6.1%). The frequency of NTPA promotion was associated with 16 behavioural domains, suggesting that several behavioural factors might be related to NTPA promotion (Supplement F).

Results of the multivariable analysis of the relationship between several factors and respondents' decision to promote NTPA showed that, of the initial 23 variables considered, only nine remained in the final model, which had good model fit (Table 3). The Innovation, Knowledge and Goals domains were significantly and independently associated with respondents' decision to promote NTPA, with odds ratios significantly different to one.

4. Discussion

This study identified several factors that influence NTPA promotion by Australian physiotherapists. Most survey respondents disagreed with statements suggesting they felt negative about promoting NTPA and that they received support from government and insurance agencies to promote NTPA. Respondents' own PA level, as well as being educated in exercise science, were bivariately associated with NTPA promotion. Respondents who were physically active promoted NTPA more than did those who were inactive, but those with exercise science education did not promote NTPA more often than those without. The multivariable analysis demonstrated that the behavioural domains Goals (other patient problems are more important than NTPA promotion), Knowledge (knowing how to promote NTPA) and Innovation (compatibility of NTPA promotion with clinical practice) were significantly and independently associated with NTPA promotion. Therefore, how often, if at all, a physiotherapist promotes NTPA is influenced by internal and external factors.

The odds of a respondent always promoting NTPA independently and significantly increased as their knowledge of how to promote NTPA increased (Domain: Knowledge). This finding is consistent with a study by Huijg et al.[12] that identified Knowledge as a determinant of PA promotion. It is possible that the training a physiotherapist has in NTPA promotion creates this knowledge, which increases their NTPA promotion frequency. However, it has been previously established that training Australian physiotherapists to use motivational interviewing (a counselling method used to improve PA levels) to help patients with back pain return to usual activities was not associated with greater use.[20] In the present study, respondents with exercise science education did not promote NTPA more often than those without this education. Therefore, factors other than just training might inform physiotherapists' knowledge of how to promote NTPA and how frequently they promote it.

More physiotherapists in this study were physically active (43.4%) than in a similar UK study (38%).[21] The respondent's PA level was bivariately associated with NTPA promotion, and physically active respondents promoted NTPA more than their inactive peers, suggesting there is a link between the amount of PA physiotherapists participate in and their decision to promote NTPA. A similar finding has also been identified in physicians and physiotherapists, where those who are physically active are more inclined to promote PA to patients.[22–24] However, this finding is in contrast to a recent UK study that reported the PA levels of physiotherapists was not associated with their decision to deliver a brief PA intervention.[21] Future research is needed to establish if encouraging and supporting physiotherapists to increase their own PA level will increase their promotion of NTPA.

The odds of respondents always promoting NTPA independently and significantly decreased as they prioritised other patient problems over NTPA (Domain: Goals). Most respondents reported that other patient problems were a higher priority than addressing low PA levels. Some physiotherapists might not consider increasing PA levels to be important when patients present with a painful musculoskeletal condition, especially if that condition is not usually treated with PA (e.g. shoulder pain), despite the patient also presenting with chronic disease risk factors (e.g. obesity).[25] The high prioritisation of other patient problems over NTPA promotion in this study might be due to physiotherapists perceiving that their patients only want, or expect, hands-on treatment.[26]

Table 2
Responses (defined as agree or disagree) to TDF domain statements provided as part of a national survey of 486 Australian physiotherapists.

TDF domain	Domain definition[a]	Example statement (n = number of responses)	Agree (number of responses (%,95%CI))	Neither agree nor disagree (number of responses (%,95%CI))	Disagree (number of responses (%,95%CI))
Behavioural regulation	Anything aimed at managing or changing objectively observed or measured actions.	I have a clear plan of how I will deliver this intervention (n = 263)	**180 (68.4%, 62.6%–73.8%)**	45 (17.1%, 13.0%–22.2%)	38 (14.5%, 10.7%–19.2%)
Beliefs about capabilities	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use.	For me, delivering the content of the intervention is easy (n = 274)	**218 (79.6%, 74.4%–83.9%)**	34 (12.4%, 9.0%–16.9%)	22 (8.0%, 5.3%–11.9%)
Beliefs about consequences	Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation.	If I deliver a non-treatment physical activity intervention, it will be effective (n = 258)	**175 (67.8%, 61.9%–73.2%)**	69 (26.7%, 21.7%–32.5%)	14 (5.4%, 3.2%–9.0%)
Goals	Mental representations of outcomes or end states that an individual wants to achieve.	Addressing other patient problems are a higher priority than delivering this intervention (n = 263)	**168 (63.9%, 57.9%–69.5%)**	65 (24.7%, 19.9%–30.3%)	30 (11.4%, 8.1%–15.9%)
Innovation	Any characteristics of the innovation that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour.	It is possible for me to tailor this intervention to my patients' needs (n = 273)	**258 (94.5%, 91.1%–96.7%)**	11 (4.0%, 2.2%–7.2%)	4 (1.5%, 0.4%–3.8%)
Innovation strategy	Any characteristics of the innovation strategy that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour.	My workplace provides training to deliver this intervention (n = 249)	**108 (43.4%, 37.4%–49.6%)**	55 (22.1%, 17.4%–27.7%)	86 (34.5%, 28.9%–40.6%)
Intentions	A conscious decision to perform a behaviour or a resolve to act in a certain way.	I intend to deliver this intervention in the next three months (n = 273)	**247 (90.5%, 86.4%–93.5%)**	21 (7.7%, 5.5%–12.6%)	5 (1.8%, 0.7%–4.8%)
Knowledge	An awareness of the existence of something.	I know how to deliver this intervention (n = 273)	**247 (90.5%, 86.4%–93.5%)**	14 (5.1%, 3.0%–8.5%)	12 (4.4%, 2.5%–7.6%))
Nature of the behaviour	The nature of the aggregate of all responses made by an individual in any situation.	Delivering a non-treatment physical activity intervention is something I do automatically (n = 258)	**201 (77.9%, 72.4%–82.6%)**	20 (7.8%, 5.0%–11.7%)	37 (14.3%, 10.6%–19.2%)
Negative emotions	A complex negative reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event.	I feel nervous when I deliver a non-treatment physical activity intervention (n = 259)	45 (17.4%, 13.2%–22.5%)	50 (19.3%, 14.9%–24.6%)	**164 (63.3%, 57.3%–69.0%)**
Optimism	The confidence that things will happen for the best or that desired goals will be attained.	In my work as a physiotherapist, in uncertain times, I usually expect the best (n = 258)	**158 (61.2%, 55.2%–67.0%)**	66 (25.6%, 20.6%–31.3%)	34 (13.2%, 9.6%–17.9%)
Organisation	Any characteristics of the organisation that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour.	My workplace provides all necessary resources to deliver this intervention (n = 254)	**157 (61.8%, 55.7%–67.6%)**	34 (13.4%, 9.7%–18.2%)	63 (24.8%, 19.9%–30.5%)
Patient	Any characteristics of the patient that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour.	Patients receiving non-treatment physical activity interventions from me are motivated to do it (n = 262)	**152 (58.0%, 52.0%–63.8%)**	75 (28.6%, 23.5%–34.4%)	35 (13.4%, 9.7%–18.1%)
Positive emotions	A complex positive reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event.	I feel optimistic when I deliver a non-treatment physical activity intervention (n = 259)	**214 (82.6%, 77.5%–86.8%)**	31 (12.0%, 8.5%–16.5%)	14 (5.4%, 3.2%–8.9%)
Skills	An ability or proficiency acquired through practice.	I have been trained in delivering this intervention (n = 273)	**174 (63.7%, 57.9%–69.2%)**	42 (15.4%, 11.6%–20.2%)	57 (20.9%, 16.5%–26.1%)
Social influences	Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours.	Most people who are important to me think that I should deliver this intervention (n = 273)	**157 (57.5%, 51.6%–63.2%)**	99 (36.3%, 30.8%–42.1%)	17 (6.2%, 3.9%–9.8%)
Socio-political context	A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting.	Government and local authorities provide sufficient support to deliver interventions like this (n = 274)	55 (20.1%, 15.7%–25.5%)	83 (30.3%, 25.2%–36.0%)	**136 (49.6%, 43.8%–55.5%)**
Social/ professional role and identity	Any characteristics of the socio-political context that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour.	Delivering this intervention is part of my work as a physiotherapist (n = 273)	**252 (92.3%, 88.5%–95.0%)**	12 (4.4%, 2.5%–7.6%)	9 (3.3%, 1.7%–6.2%)

Notes: NTPA = Non-treatment physical activity. TDF = Theoretical domains framework.
Majority responses are bolded.
Please refer to Supplement E for responses to all statements delivered in the survey.
[a] Definitions obtained from Cane et al.[29] and VandenBos and American Psychological Association[30] as cited in Huijg et al.[13]

Table 3
Logistic regression analysis of 486 Australian physiotherapists' choice to promote NTPA by selected factors — final model.

	Variable	OR	95%CI
Domains	Goals	0.62	0.424–0.897[a]
	Innovation	1.75	1.027–2.985[a]
	Knowledge	1.60	1.026–2.502[a]
	Nature of the behaviour	1.22	0.817–1.830
	Negative emotions	1.44	0.927–2.240
	Optimism	1.35	0.838–2.180
	Positive emotions	1.67	0.893–3.126
Demographics	Physiotherapist is a clinic manager	2.17	0.933–5.063
	Physiotherapist PA level — half active[b]	1.69	0.724–3.952
	Physiotherapist PA level — active[c]	2.05	0.881–4.762

Notes: NTPA = Non-treatment physical activity. PA = Physical activity. CI = Confidence interval. OR = Odds Ratio.
Model notes: Overall percent of correct predictions = 70.2%. Hosmer–Lemeshow test statistic: $p = 0.05$.

[a] Result is statistically significant ($p < 0.05$).

[b] Respondent met either cardiovascular or strength component of the PA guidelines, but not both.

[c] Respondent met the PA guidelines.

The odds of always promoting NTPA were higher for respondents who felt NTPA promotion was compatible with their clinical environment (Domain: Innovation). This suggests that the better NTPA promotion fits within the physiotherapists' clinical setting (e.g. compatibility with daily practice and suits the needs of both the physiotherapist and the patient), the more they will promote NTPA. Thus, NTPA promotion must be contextually appropriate to be successful; a NTPA promotion intervention that works in one physiotherapy clinic might not work for another.

It is important to involve relevant professional stakeholders (e.g. clinic managers and physiotherapists) when recommending ways physiotherapists can promote NTPA to ensure NTPA promotion fits well into the clinical setting. Support from external bodies, such as government and insurance companies, was considered important by stakeholders to ensure the sustainability and effectiveness of PA promotion interventions in primary care.[27] Most respondents felt support from government and insurance companies for NTPA promotion was low, potentially due to insurance companies in Australia not funding PA promotion by physiotherapists when done in isolation (e.g. not being used to treat a musculoskeletal condition). Therefore, having the support of insurance companies and government agencies might be necessary for Australian physiotherapists to promote NTPA more often.

This study has identified several potential factors that can influence physiotherapists' decision to promote NTPA. Importantly, decisions to promote NTPA were independently and significantly associated with respondents' knowledge, prioritisation of NTPA promotion and how well NTPA promotion fits into their clinical environment. To support the development of skills in NTPA promotion, undergraduate physiotherapy programs should include strategies to: (i) improve knowledge to promote NTPA; (ii) prioritise NTPA promotion to the same level as other patient problems; and (iii) smoothly integrate NTPA promotion into the local clinical context (e.g. by making NTPA promotion quick and simple to deliver). Future research should also address these factors during the design of physiotherapist-led NTPA promotion interventions to give the intervention the best chance of success.

There are some limitations to this study. The findings can only be generalised to physiotherapists treating patients with musculoskeletal conditions in private practice and outpatient settings. There is a risk for selection bias, where physiotherapists specifically interested in NTPA promotion might have been more inclined to complete the survey. The survey relied on self-reported responses to questions that were piloted but not formally validated prior to use. Self-report is less reliable than objective measures for measuring physiotherapist PA levels[28] and other components of this survey; however, self-report measures were the most feasible for this study. The cross-sectional nature of this study means predictors of NTPA promotion could not be identified. Finally, the 216 survey responses received was below the estimated number needed in the a priori sample size calculation. More responses might have led to stronger or different associations being identified.

5. Conclusion

This study contributes to the current body of literature by identifying the factors influencing NTPA promotion by Australian physiotherapists treating patients with musculoskeletal conditions in private practice and outpatient settings. Physically active physiotherapists promoted NTPA more often than inactive physiotherapists, suggesting that physiotherapists' own PA level could contribute towards their decision to promote NTPA. Having the knowledge to promote NTPA, not perceiving other patient problems as more important than NTPA and using a NTPA promotion intervention that fits within the physiotherapists' current clinical environment were independently and significantly associated with NTPA promotion. These factors deserve consideration when designing ways to integrate NTPA promotion into Australian physiotherapy clinical and education settings.

Practical implications

- Physiotherapists' physical activity level was associated with how often they promoted non-treatment physical activity. This suggests that the more physically active the physiotherapist was, the more they promoted non-treatment physical activity to their patients.
- Having the knowledge to promote non-treatment physical activity, not prioritising other patient concerns (e.g. pain) over non-treatment physical activity promotion and using a non-treatment physical activity promotion approach that fits well within the physiotherapist's clinical environment were all independently and significantly associated with physiotherapists always promoting non-treatment physical activity.
- It is important to consider physiotherapists' physical activity levels, knowledge, treatment prioritisation and the compatibility of non-treatment physical activity promotion with the clinical environment when encouraging physiotherapists to promote non-treatment physical activity.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at https://doi.org/10.1016/j.jsams.2018.08.006.

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