Musculoskeletal Science and Practice 52 (2021) 102342

Contents lists available at ScienceDirect

Musculoskeletal Science and Practice

journal homepage: www.elsevier.com/locate/msksp

Original article

Unhelpful beliefs and attitudes about low back pain in the general population: A cross-sectional survey

Guillaume Christe [a,b,*], Valentina Pizzolato [a], Meghann Meyer [a], Jessica Nzamba [a], Claude Pichonnaz [a,c]

[a] Department of Physiotherapy, HESAV School of Health Sciences, HES-SO University of Applied Sciences and Arts Western Switzerland, Lausanne, Switzerland
[b] Swiss BioMotion Lab, Department of Musculoskeletal Medicine, University Hospital and University of Lausanne (CHUV-UNIL), Lausanne, Switzerland
[c] Department of Musculoskeletal Medicine, University Hospital and University of Lausanne (CHUV-UNIL), Lausanne, Switzerland

ARTICLE INFO

Keywords:
Psychological factors
Exercise
Survey
Information

ABSTRACT

Background: Unhelpful beliefs about non-specific low back pain (LBP) are associated with poorer coping strategies and unhelpful behaviours. Furthermore, targeting unhelpful beliefs about back pain has been advanced as a major priority to decrease the burden of LBP. Therefore, studies exploring these beliefs are needed to adapt the message delivered to the population.
Objectives: To identify attitudes and beliefs about LBP in the general population in French-speaking Switzerland and to analyse their association with individual characteristics and the belief that exercise is an effective treatment for LBP.
Design: Cross-sectional study.
Method: Attitudes and beliefs were measured with the Back-Pain Attitudes Questionnaire (Back-PAQ). Individual characteristics and participants' beliefs about the effectiveness of exercise for LBP were collected to determine their association with Back-PAQ score.
Results: The questionnaire was completed by 1129 participants. Unhelpful beliefs were widespread (mean (SD) Back-PAQ score: 113.2 (10.6)), especially those that the back needs protection, is easy to injure and that the nature of LBP is special. Only 55% of the participants believed exercise to be one of the most effective treatment for LBP. Individual characteristics only explained 4% of the Back-PAQ score variance.
Conclusion: French-speaking Swiss general population has high levels of unhelpful beliefs and moderate confidence in the effectiveness of exercise for LBP, though the message "staying active is good for LBP" was well understood. The messages to decrease the level of unhelpful beliefs about LBP in the population should specifically target the vulnerability, protection and special nature of LBP, and promote exercise therapy.

1. Introduction

Low back pain (LBP) is the main cause of disability worldwide (Hartvigsen et al., 2018). Psychological factors have been identified as important contributors to LBP disability (Hilfiker et al., 2007; Hayden et al., 2010; Linton and Shaw, 2011). These include cognitive and emotional factors, such as catastrophizing, self-efficacy, pain-related fear and psychological distress. All of them have been shown to strongly influence pain and disability in CLBP patients (Costa et al., 2011; Pinheiro et al., 2016; Crombez et al., 2012; Wertli et al., 2014a; Linton, 2000). Studies also demonstrated that these psychological factors can be mediators and moderators of treatment efficacy (Wertli et al., 2014b; Lee et al., 2017).

While an essentially biomedical approach is relevant for the detection of specific treatable causes of LBP, the integration of psychosocial factors is paramount in non-specific low-back pain, which constitute the vast majority of cases (Hartvigsen et al., 2018). Different models have described how these psychological factors are intertwined and influence each other, and lead to disability in non-specific LBP (Linton and Shaw, 2011). In the fear avoidance model (FAM), a threatening appraisal of pain (e.g. catastrophizing or unhelpful beliefs) can induce pain-related fear, which can lead to an avoidance behaviour and disability (Crombez et al., 2012; Vlaeyen and Linton, 2000; Christe et al., 2020). In the misdirected problem solving model, worry and biomedical beliefs about

* Corresponding author. HESAV School of Health Sciences, Av. Beaumont 21, 1010, Lausanne, Switzerland.
E-mail address: guillaume.christe@hesav.ch (G. Christe).

https://doi.org/10.1016/j.msksp.2021.102342
Received 13 August 2020; Received in revised form 18 January 2021; Accepted 1 February 2021
Available online 4 February 2021

the origin of pain prevent adopting helpful behaviours (Eccleston and Crombez, 2007). In addition, a perseverance loop that increases worry is created. Therefore, unhelpful beliefs are frequently considered as important drivers of psychological distress, pain-related fear and unhelpful behaviours (Crombez et al., 2012; Eccleston and Crombez, 2007; Darlow, 2016).

Unhelpful beliefs that have been associated with higher levels of disability or poor outcomes in patients with LBP are diverse. For instance, a strong biomedical view of LBP, which suggest that pain is attributable to tissue damage in the back (Darlow, 2016), is associated with more disability (Briggs et al., 2010) and higher levels of pain-related fear (Bunzli et al., 2015). Believing that the back is vulnerable and needs protection is also linked with higher levels of pain-related fear and avoidance behaviours (Bunzli et al., 2015; Darlow et al., 2015). Because of their negative consequences and inconsistency with current evidence, targeting unhelpful beliefs about LBP is considered to be a major priority to decrease the burden of LBP (Hartvigsen et al., 2018; Darlow, 2016; Buchbinder et al., 2018).

Unhelpful beliefs and attitudes are not only present in patients with LBP, but also in the general population (Morton et al., 2019; Darlow et al., 2014a). When confronted with an episode of LBP, these beliefs may influence the attitudes of the person toward LBP, driving ineffective behaviours, such as passive coping strategies, movement avoidance, and staying away from work (Christe et al., 2020; Darlow, 2016; Bunzli et al., 2015). These unhelpful behaviours may also prevent people to engage in exercises, which have been shown to be one of the best available treatment to date for persistent LBP and preventing recurrence (Foster et al., 2018; NICE, 2016; Steffens et al., 2016). While fear-avoidance beliefs or beliefs about the negative consequences of LBP (e.g. LBP will stop you from working) have been repeatedly demonstrated in the general population (Morton et al., 2019), studies exploring beliefs about the vulnerability, the need for protection of the back and their influence on the reliance on exercise are scarce (Darlow et al., 2014a; Pierobon et al., 2020). Furthermore, as cultural and individual factors may influence beliefs, it is necessary to understand the current beliefs about LBP of French-speaking population to target more precisely the messages addressed to the population, as no study has been yet conducted (Morton et al., 2019).

Therefore, this study primarily aimed to identify the attitudes and beliefs about LBP in French-speaking Swiss general population to provide material for targeted future information actions. Second, we aimed to assess if these beliefs are associated with (1) individual characteristics and (2) the belief that exercise is an effective treatment.

2. Materials and methods

This study was conducted according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) criteria (von Elm et al., 2007).

2.1. Recruitment of participants

All adults living in the French-speaking part of Switzerland could participate to this cross-sectional survey to the exception of osteopaths, physiotherapists and chiropractors (students and professionals) due to their particular knowledge about LBP.

In 2017, the population of interest was estimated to be 1′731′411 (Federal Statistical Ofiice, 2017). The sample size calculation showed that 385 participants were needed to achieve a 95% confidence level and an accuracy of ±5% (http://www.openepi.com). The recruitment was carried out using a non-probabilistic technique. A link to a questionnaire hosted in RedCap was spread through social media, emails and mobile phones messaging from November 2017 to January 2018. To promote a wider diffusion, a snowball sampling method was used as all people that received the message were asked to send it further. The Research Ethics Committee confirmed that the project could be conducted in accordance with Swiss ethical regulations. The study follows the principles of the Declaration of Helsinki.

2.2. Questionnaire

First, participants had to fill out individual information that was suggested to be possibly associated with back beliefs (Morton et al., 2019), such as their age, gender, level of education and profession. The level of education was based on the Swiss education system, with (1) primary education (obligatory school), (2) secondary education (professional or general diploma), (3) tertiary education (university). For profession, we categorized participants into health professionals (doctors, nurses, occupational therapists and midwifes) or not. Moreover, participants were asked if they ever had LBP in their life, during the last 12 months, and currently. Finally, they answered if they already had a treatment for LBP, and if they were currently being treated for LBP.

Beliefs about LBP were recorded with the validated French version of the Back Pain Attitudes Questionnaire (Back-PAQ) (Darlow et al., 2014b; Demoulin et al., 2017). This questionnaire was elaborated from a qualitative study including people with acute and chronic LBP, which explored underlying beliefs associated with pain-related fear, low outcome expectations and catastrophizing (Darlow et al., 2013). Based on this study, six themes were identified and were used to create this 34 items questionnaire, each question belonging to one theme. The themes were ‘the vulnerability of the back’ (vulnerability), ‘the need to protect the back’ (protection), ‘the correlation between pain and injury’ (pain), ‘the special nature of back pain’ (special pain), ‘activity participation while experiencing back pain’ (activity) and ‘the prognosis of back pain’ (prognosis). Each item scores on a five-point Likert scale (False, Possibly false, Unsure, Possibly true, True), with higher scores meaning more unhelpful beliefs. The total score ranges from 34 to 170 points. Eleven questions need to be reversed to calculate the score.

As exercise is considered as first-line treatment for non-specific LBP and one of the most effective intervention to prevent recurrence from LBP (Foster et al., 2018; Steffens et al., 2016), we also designed a question to investigate participants’ beliefs of its effectiveness, compared to other approaches. Participants were given five choices and had to rate them from the most to the least effective treatment. The five choices were: medication, acupuncture, exercise, surgery and manipulation.

2.3. Statistical analysis

Only fully completed Back-PAQ were used for the analyses. For each item, we calculated the frequency of each response and the mean score (between 1 and 5, the higher, the more unhelpful beliefs) (Darlow et al., 2014a; Demoulin et al., 2017). Based on this score, items were ordered from the highest to the lowest score. The mean and standard deviation (SD) of each theme score, and the Back-PAQ total score were also calculated.

To determine if individual characteristics were associated with beliefs and attitudes about LBP, we first compared the Back-PAQ group scores according to demographic variables using independent t-tests (gender, lifetime and last year experience of LBP, previous treatment for LBP) and one-way ANOVA (level of education). Pearson correlation between Back-PAQ score and age was also calculated. In the next step, we conducted multiple regressions to calculate the explained variance in the Back-PAQ total score and each theme score by the individual characteristics that were found to influence significantly back beliefs in the previous step.

Finally, to test if beliefs about LBP are associated with the perception that exercise is an effective treatment for LBP, we separated participants into two groups based on how they ranked ‘exercise’ in the question about treatment effectiveness. We created a first group that believed exercise to be part of the most effective treatment for LBP by including participants who ranked the exercise in 1st or 2nd place. We compared

this group to the participants who selected exercise in the 3rd, 4th or 5th place using an independent *t*-test. Statistical analyses were performed with SPSS (Version 23, IBM, NY, USA), using a significance level set a priori at $\alpha < 0.05$.

3. Results

The questionnaire was returned 1552 times. We excluded 393 questionnaires because they were incomplete, 26 because of exclusion criteria (e.g. physiotherapist or living outside the French speaking part of Switzerland), and four because they were duplicates. Therefore, there were 1129 participants who completed the Back-PAQ, of whom 1079 with fully completed files (Back-PAQ + question on treatment effectiveness).

Participants' characteristics are described in Table 1. The mean (SD) score of the Back-PAQ was 113.2 (10.6) (range 64–153) and the mean score per question was 3.3 (0.3). The themes '*protection*' and '*special pain*' had the highest mean scores per theme (4.3 ± 0.5 and 4.2 ± 0.6, respectively), followed by '*vulnerability*' (3.6 ± 0.5), '*pain*' (2.6 ± 0.6), '*prognosis*' (2.5 ± 0.8) and '*activity*' (2.4 ± 0.8) (Fig. 1). The detailed formulation and the mean score per item of the ten questions associated with the most unhelpful and most helpful beliefs are displayed in Table 2. The response frequencies for each Back-PAQ item are shown in Supplementary Material I.

Some demographic variables were significantly associated with the Back-PAQ score. Back-PAQ score was 3.1 points (95%CI 1.7 to 4.5, $p < 0.001$) lower for woman than men. The level of education significantly influenced the Back-PAQ score ($F(2) = 12.26$, $p < 0.001$). A Tukey post hoc test showed that tertiary education was associated with significantly lower mean Back-PAQ score than secondary (−2.5, 95%CI -4.0 to −0.9, $p = 0.001$) and primary (−6.4, 95%CI -10.3 to −2.4, $p < 0.001$) education. Furthermore, the Back-PAQ score was 1.6 (95%CI 0.3 to 3.8, $p = 0.01$) higher in participants with current LBP than in other participants. Lifetime and past year experience of LBP, age and previous treatments for LBP were not significantly associated with the Back-PAQ score. Multiple regression model demonstrated that gender, current LBP and the level of education only explained 4% of the variance of the total score of the Back-PAQ ($F(3) = 16.9$, $p < 0.001$, $R^2 = 0.04$) (Table 3). In addition, these variables explained between 1% and 6% of each theme score (R^2: 0.01 to 0.06, $p < 0.01$).

Manipulation was considered as the most effective treatment by participants (43.8% as 1st choice and 22.7% as second choice). Exercise was chosen as the most effective treatment by 22% of the participants, and 34% chose it as their second choice (Supplementary Material II). These findings were similar among participants with current LBP (19% and 35%, respectively). Participants who selected exercise amongst the two most effective treatments had a lower Back-PAQ total score than the rest of the cohort, with a mean difference of 1.6% (95%CI 0.7–2.6%, $p = 0.001$) (Fig. 2). Scores for Back-PAQ themes were also significantly lower in these participants for protection (−1.6%), special pain (−2%), activity (−6.1%) and prognosis (−3.8%).

Table 1
Participant characteristics. SD: standard deviation; N: number; LBP: Low Back Pain; OT: occupational therapists; MW: midwifes.

		N = 1129	%	Mean Back-PAQ score
Age (mean ± SD; range)	36,07 ± 13,27; 18-80			
Gender	Men	317	28.08	115.5
	Women	812	71.92	112.4
Level of Education	I	42	3.72	118.5
	II	383	33.92	114.6
	III	704	62.36	112.2
Health professionals (doctors, nurses, OT, MW)	Yes	70	6.2	113.5
	No	1059	93.8	109.6
History of LBP	Never	39	3.45	112.9
	Last 12 month	944	83.61	113.4
	Current	533	47.21	114.1
Treatment for LBP	Past	689	61.03	113.3
	Current	160	14.17	113.8

4. Discussion

This study indicated that people living in the French speaking part of Switzerland have high levels of unhelpful beliefs and attitudes about LBP. The beliefs that the back needs protection, is easy to injure and that the nature of LBP is special are widely held. At the same time, respondents have helpful beliefs about the need to stay active and the recognition of the influence of psychosocial factors in LBP.

4.1. Attitudes and beliefs about LBP in the general population

People see the back as a vulnerable body part that needs protection. The majority of participants believed that it is easy to injure the back (Q11, Q12, Q6, Q22), and that particular postures and movements are needed to protect it (Q8, Q5, Q7). These beliefs highlighted the strong biomechanical view that people have on LBP. These common beliefs and attitudes are not only engrained in the western culture (Morton et al., 2019; Darlow et al., 2014a), but are also common among health professionals (Darlow et al., 2012; Gardner et al., 2017), despite no evidence supporting them (Hartvigsen et al., 2018; Saraceni et al., 2020; Wai et al., 2010; Verbeek et al., 2011). Therefore, they may be constantly reinforced by social interactions and will require a considerable investment to be modified within the general population (Fishbein and Ajzen, 1975).

Participants also held a strong belief that LBP is special in its nature, and therefore needs particular attention (Q18, Q20, Q24, Q19). These views suggest that LBP is not seen as a normal and non-threatening condition, such as headache or muscle pain (Aldrich and Eccleston, 2000). These findings also suggests that the general population seems to understand LBP through the lens of the injury model (Mixter and Barr, 1934), meaning that the back should be repaired to have less pain. Furthermore, these beliefs about the special nature of LBP may push people to consult more quickly, may hinder self-management and lead to passive coping strategies.

Helpful beliefs found in this survey indicate that the general population has already recognized some evidenced-based concepts about LBP. First, most participants agreed that staying active is important in the presence of LBP (Q27, Q25). Therefore, it seems that this message that has been often promoted reached its target (Buchbinder et al., 2001; Gross et al., 2010; Badard et al., 2019). Nevertheless, unhelpful beliefs about the need for protection and the vulnerability of the back may still hinder a positive behaviour about physical activity when non-specific LBP is present. Considered together, these contradictory beliefs may generate cognitive conflict on appropriate behaviour in non-specific LBP, especially when they are reinforced by health professionals (e.g. "You should stay active but be careful when you move"). Second, beliefs about prognosis were mainly positive and participants believed that having LBP will not last forever. Previous surveys found different results and showed common unhelpful beliefs about the negative consequences of LBP (Morton et al., 2019). The results of this survey may show a positive evolution of the understanding of LBP. Third, while people mainly saw LBP as a biomedical condition, thinking that stress, thoughts and feelings can be associated with LBP (Q16, Q15) was common. Therefore, these findings should encourage clinicians to discuss these factors, as patients seem to be aware of their influence on LBP. This could be a starting point to improve their understanding of the multidimensional nature of LBP during the clinical encounter.

4.2. Influence of individual characteristics

Beliefs and attitudes about LBP were similar across individual characteristics. While being a woman, not having currently LBP and

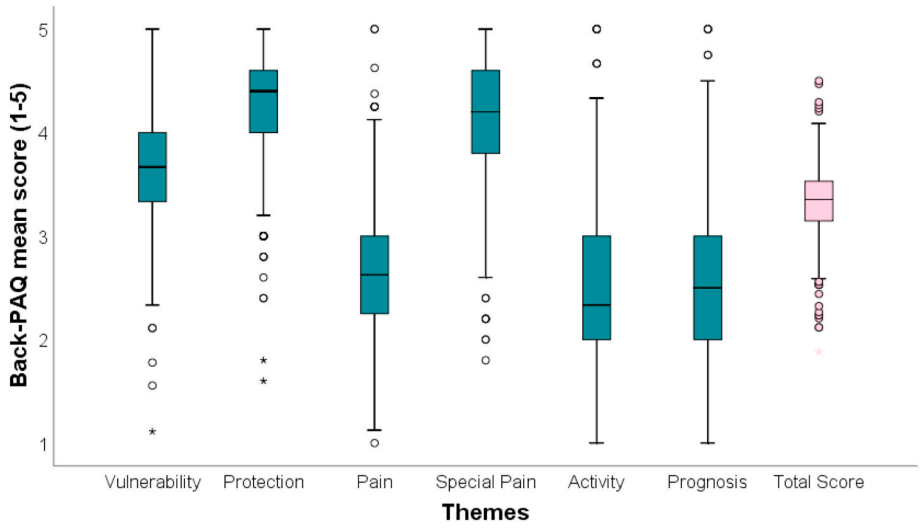

Fig. 1. Back-PAQ total and themes scores.

Table 2
Most unhelpful and helpful beliefs about non-specific low back pain. Higher mean item score is associated with more unhelpful beliefs. *: questions with reversed score ratings (for these scores, a low mean also indicates helpful beliefs as the score was reversed). † means have been adjusted for question direction; LBP Low Back Pain.

Ten most unhelpful beliefs about LBP based on mean score rating per item			
Theme	**Item**		**Mean (SD) item score †**
protection	8	Good posture is important to protect your back	4.93 (0.36)
vulnerability	5	Lifting without bending your knees is not safe for your back	4.73 (0.84)
protection	7	It is important to have strong muscles to support your back	4.71 (0.67)
protection	11	You could injure your back if you are not careful	4.61 (0.71)
vulnerability	12	You can injure your back and only become aware of the injury some time later	4.50 (0.81)
special pain	18	Having back pain makes it difficult to enjoy life	4.35 (0.96)
special pain	20	It is hard to understand what back pain is like if you have never had it	4.32 (0.92)
vulnerability	6	It is easy to injure your back	4.31 (1.03)
pain	22	If you ignore back pain, you may cause damage to your back	4.28 (0.86)
special pain	24	To effectively treat back pain, you need to know exactly what is wrong	4.18 (1.03)
Ten most helpful beliefs about LBP based on mean score rating per item			
pain	16*	Stress in your life (financial, work, relationship) can make back pain worse	1.47 (0.80)
activity	27*	If you have back pain you should try to stay active	1.71 (0.85)
pain	15*	Thoughts and feelings can influence the intensity of back pain	1.77 (1.02)
prognosis	34	Once you have a back problem, there is not a lot you can do about it	1.81 (1.12)
activity	25	If you have back pain you should avoid exercise	2.20 (1.20)
pain	13	Back pain means that you have injured your back	2.22 (1.22)
vulnerability	2*	Your back is well designed for the way you use it in daily life	2.45 (1.29)
vulnerability	1*	Your back is one of the strongest parts of your body	2.54 (1.25)
prognosis	28	Most back pain settles quickly, at least enough to get on with normal activities	2.58 (1.19)
prognosis	32	Once you have had back pain there is always a weakness	2.66 (1.31)

Table 3
Regression model. B: Beta Coefficients; β (stand.): standardized Beta coefficient; Sig.: p-value; LBP: low back pain.

dependant variable: Back-PAQ total score			
R^2: 0.043; Adjusted R^2: 0.041			
	B	β (stand.)	Sig.
(Constant)	127.848		0.000
Gender	−3.239	−0.137	0.000
Level of education	−2.487	−0.132	0.000
Current LBP	−1.706	−0.08	0.007

having had tertiary education were significantly associated with more positive beliefs due to the high statistical power of the study, the clinical significance is limited and these factors explained only 4% of the variability of the Back-PAQ score. Furthermore, these differences are much below the minimum detectable change of this questionnaire (14.5) (Demoulin et al., 2017). Furthermore, our results suggest that having LBP has only a small influence on back beliefs. This is supported by a previous study that found a mean Back-PAQ score of 120 in patients with chronic LBP, which is only slightly higher than in the general population (Demoulin et al., 2017). Our findings also suggest that back beliefs are consistent over generations and had not been modified by previous LBP experience or interaction with health professionals. Additionally, the high prevalence of unhelpful beliefs in the general population seems to be very frequent worldwide, as studies found similar mean Back-PAQ score in New Zealand (115) and Argentina (112). These surveys also found a very small or no influence of individual characteristics (Darlow et al., 2014a; Pierobon et al., 2020). Altogether, these findings highlight that the presence of unhelpful beliefs is a widespread, stable and pre-existing phenomenon in LBP, in the absence of specific interventions.

4.3. Perception of exercise as an effective treatment

Only half of the participants considered exercise as one of the first two most effective treatment options. The preference for passive treatment strategies by the general population is supported by the ranking of manipulation as the perceived most effective intervention. While manual therapy is a recommended treatment for LBP, it should preferably be part of a more global rehabilitation approach that includes exercises (Foster et al., 2018; Steffens et al., 2016). Patients that do not engage in exercise and develop passive coping strategies are likely to be

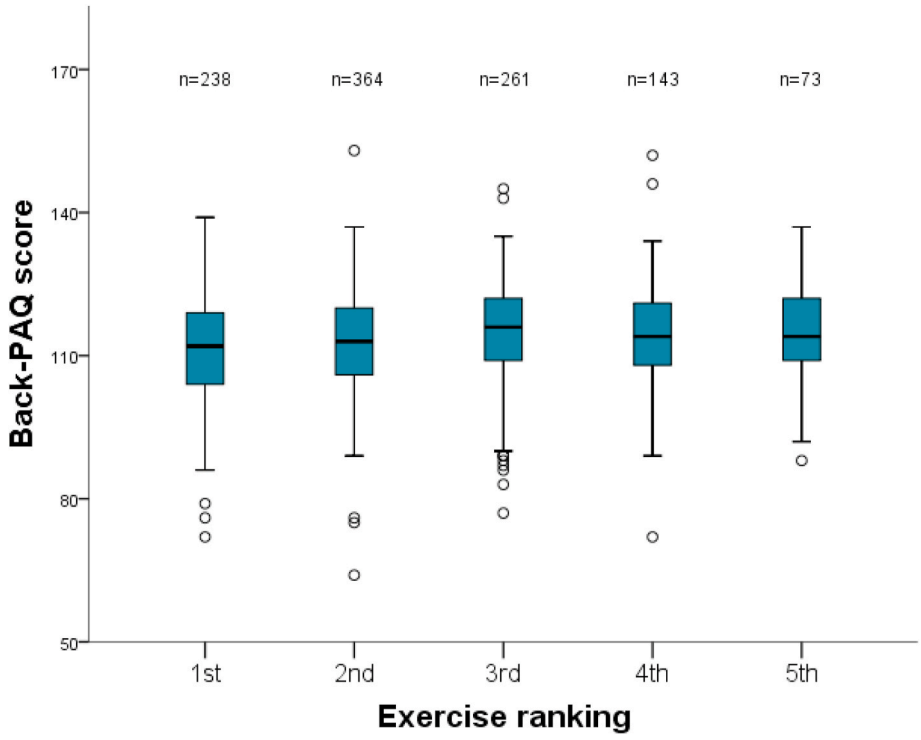

Fig. 2. Back-PAQ score based on exercise effectiveness ranking. n: number of participants per rank.

at higher risk of recurrences and poor outcomes (Steffens et al., 2016; Ramond et al., 2011).

The high propensity of the population to favour passive treatments may make it challenging for health professionals to promote exercise. We found a statistically significant, albeit very low (less than 2%), difference in the Back-PAQ score between the participants who favoured exercise and those who did not. This suggests that the perception of the effectiveness of exercise for LBP is not importantly influenced by beliefs and attitudes. Therefore, changing beliefs and attitudes about the back may not directly change beliefs about exercise effectiveness.

4.4. Limitations

This study has some limitations. While the snowball sampling method was effective in recruiting a large sample, it was not possible to estimate the proportion of the target population that was reached or the response rate because the total number of people who received the questionnaire is unknown. Additionally, almost all the participants in our study (97%) had experienced LBP at least once in their lifetime and 47% currently had LBP. Previous epidemiological studies showed a lifetime prevalence of 84% in western countries (Walker, 2000) and a prevalence in the past four weeks of 24% was found in Switzerland (Wieser et al., 2011). Therefore, the prevalence found in our study is higher than in previous reports. One reason may be our sampling method that could have induced a self-selection bias. Indeed, people having experienced LBP may have been more interested in filling the questionnaire. Furthermore, the majority of the participants were women (72%), young adults (57% were between 18 and 34) and with a high level of education (62%). For all these reasons, the characteristics of the study sample may thus differ in some respects from those of the Swiss French-speaking population (Federal Statistical Office, 2020). However, the small influence of all demographic variables on the Back-PAQ score suggests that unhelpful beliefs are evenly distributed across the general population and that a probabilistic sampling method would likely have led to similar results. Finally, Switzerland has a population with very diverse cultural origins. Future research should thus determine if and how cultural background influence LBP beliefs.

4.5. Implications

The findings of this study have potential implications for the adaptation of messages on non-specific LBP. First, information messages should go beyond the need to stay active with LBP (a concept that seems already well accepted by the general population) and target more specifically unhelpful beliefs and attitudes about vulnerability, protection and the nature of LBP. Therefore, messages should stress specifically the benign nature of non-specific LBP, the back capacity to handle various loads and movements (Belavý et al., 2017), and the minor influence of poor postures or wrong movements in LBP (Saraceni et al., 2020; Swain et al., 2020). Second, the value of exercise in LBP management should be emphasised, with tangible examples that facilitate self-management (Foster et al., 2018; NICE, 2016; Steffens et al., 2016; Ferreira et al., 2020).

Various strategies may be considered for the promotion of these messages. A consistent promotion during the therapeutic encounter may be helpful for the portion of the population suffering LBP. Professional training is of importance on this issue, as it has been pointed out that the gap between research results and clinical practice is still large (Buchbinder et al., 2018). Consideration should also be given to the dissemination of information through mass-media campaigns and back literacy programs to reach a large part of the general population. This strategy should ideally be integrated within a larger public health vision and supported by public authorities, as some marketing messages may powerfully oppose to reassuring evidence-based messages (Traeger et al., 2019). Nuances in the delivery of messages about non-specific LBP to the general population is of importance, because having beliefs about the need to protect the back may also be helpful in some specific situations, such as high irritability or the presence of a serious pathology.

Further research should evaluate the impact of these strategies on the global burden of LBP. Given the high prevalence of unhelpful beliefs in the general population compared to the relatively small proportion that will develop disabling LBP, they should only be considered as one of

several prognostic factors the weight of which is to specify (Hartvigsen et al., 2018). Future studies should also determine the effect of changing people beliefs on future LBP disability. Though the role of unhelpful beliefs as a poor prognosis factors of LBP is recognized (Linton, 2000; Vlaeyen and Linton, 2000; Eccleston and Crombez, 2007), there is a need for prospective longitudinal studies that analyse how they predict chronic disabling LBP.

5. Conclusion

This survey demonstrated the presence of high levels of unhelpful beliefs about LBP in the French-speaking Swiss general population. Beliefs were comparable across a range of demographic variables and regardless of the presence or absence of LBP. While people generally believed that staying active is important with LBP, they also thought that the back needs protection and is easy to injure. Furthermore, only half of the participants considered exercise as part of the most effective strategies for LBP. These findings suggest that information about LBP should go beyond general messages such as staying active with LBP. They should directly target the unhelpful beliefs found in this survey together with promoting helpful behaviour and attitudes about LBP.

Ethics

The Research Ethics Committee confirmed that the project could be conducted in accordance with Swiss ethical regulations.

Declaration of competing interest

None.

Acknowledgements

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.msksp.2021.102342.

References

Aldrich, S., Eccleston, C., 2000. Making sense of everyday pain. In: Social Science and Medicine, pp. 1631–1641.
Badard, M., Certain, M.H., Rannou, F., Ribinik, P., Dufour, X., Bailly, F., et al., 2019. OP0103 effects ON a French mass media campaign ON back pain beliefs and behaviors. In: Annals of the Rheumatic Diseases. BMJ, pp. 124.2–125.
Belavý, D.L., Quittner, M.J., Ridgers, N., Ling, Y., Connell, D., Rantalainen, T., 2017. Running exercise strengthens the intervertebral disc. Sci. Rep. 7, 45975.
Briggs, A.M., Jordan, J.E., Buchbinder, R., Burnett, A.F., O'Sullivan, P.B., Chua, J.Y.Y., et al., 2010. Health literacy and beliefs among a community cohort with and without chronic low back pain. Pain 150 (2), 275–283.
Buchbinder, R., Jolley, D., Wyatt, M., 2001. Population based intervention to change back pain beliefs and disability: three part evaluation. Br. Med. J. 322 (7301), 1516–1520.
Buchbinder, R., van Tulder, M., Öberg, B., Costa, L.M., Woolf, A., Schoene, M., et al., 2018. Low back pain: a call for action. Lancet 391, 2384–2388, 10137.
Bunzli, S., Smith, A., Watkins, R., Schütze, R., O'Sullivan, P., 2015. What do people who score highly on the tampa scale of kinesiophobia really believe? A mixed methods investigation in people with chronic non specific low back pain. Clin. J. Pain 31 (7), 621–632.
Christe, G., Crombez, G., Edd, S., Opsommer, E., Jolles, B.M., Favre, J., 2020. The Relationship between Psychological Factors and Spinal Motor Behaviour in Low Back Pain: a Systematic Review and Meta-Analysis. Pain. https://doi.org/10.1097/j.pain.0000000000002065.
Costa, L.D.C.M., Maher, C.G., McAuley, J.H., Hancock, M.J., Smeets, R.J.E.M., 2011. Self-efficacy is more important than fear of movement in mediating the relationship between pain and disability in chronic low back pain. Eur. J. Pain 15 (2), 213–219.
Crombez, G., Eccleston, C., Van Damme, S., Vlaeyen, J., Karoly, P., 2012. Fear-avoidance model of chronic pain: the next generation. Clin. J. Pain 28 (6), 475–483.
Darlow, B., 2016. Beliefs about back pain: the confluence of client, clinician and community. Int. J. Osteopath. Med. 20, 53–61.
Darlow, B., Fullen, B.M., Dean, S., Hurley, D.A., Baxter, G.D., Dowell, A., 2012. The association between health care professional attitudes and beliefs and the attitudes and beliefs, clinical management, and outcomes of patients with low back pain: a systematic review. Eur. J. Pain 16 (1), 3–17.
Darlow, B., Dowell, A., Baxter, G.D., Mathieson, F., Perry, M., Dean, S., 2013. The enduring impact of what clinicians say to people with low back pain. Ann. Fam. Med. 11 (6), 527–534.
Darlow, B., Perry, M., Stanley, J., Mathieson, F., Melloh, M., Baxter, G.D., et al., 2014a. Cross-sectional survey of attitudes and beliefs about back pain in New Zealand. BMJ Open 4 (5), e004725.
Darlow, B., Perry, M., Mathieson, F., Stanley, J., Melloh, M., Marsh, R., et al., 2014b. The development and exploratory analysis of the back pain attitudes questionnaire (Back-PAQ). BMJ Open 4 (5), e005251.
Darlow, B., Dean, S., Perry, M., Mathieson, F., Baxter, G.D., Dowell, A., 2015. Easy to harm, hard to heal: patient views about the back. Spine 40 (11), 842–850.
Demoulin, C., Halleux, V., Darlow, B., Martin, E., Roussel, N., Humblet, F., et al., 2017. Traduction en langue française de la version longue du « Back Pain Attitudes Questionnaire » et étude de ses qualités psychométriques. Mains Libr. 4, 19–27.
Eccleston, C., Crombez, G., 2007. Worry and chronic pain: a misdirected problem solving model. Pain 132 (3), 233–236.
Federal Statistical Office, 2020. Formation achevée la plus élevée selon les villes, 2014-2018 cumulé.
Federal Statistical Ofiice, 2017. Population résidante permanente selon la catégorie de nationalité, l'âge et le canton, 2e trimestre.
Ferreira, G.E., Howard, K., Zadro, J.R., O'Keeffe, M., Lin, C.W.C., Maher, C.G., 2020. People considering exercise to prevent low back pain recurrence prefer exercise programs that differ from programs known to be effective: a discrete choice experiment. J. Physiother. 66 (4), 249–255.
Fishbein, M., Ajzen, I., 1975. Belief, Attitude, Intention, and Behavior: an Introduction to Theory and Research, vol. 10. Philosophy Rhetoric, p. 578.
Foster, N.E., Anema, J.R., Cherkin, D., Chou, R., Cohen, S.P., Gross, D.P., et al., 2018. Prevention and treatment of low back pain: evidence, challenges, and promising directions. Lancet 391, 2368–2383, 10137.
Gardner, T., Refshauge, K., Smith, L., McAuley, J., Hübscher, M., Goodall, S., 2017. Physiotherapists' beliefs and attitudes influence clinical practice in chronic low back pain: a systematic review of quantitative and qualitative studies. J. Physiother. 63 (3), 132–143.
Gross, D.P., Russell, A.S., Ferrari, R., Battié, M.C., Schopflocher, D., Hu, R., et al., 2010. Evaluation of a Canadian back pain mass media campaign. Spine 35 (8), 906–913.
Hartvigsen, J., Hancock, M.J., Kongsted, A., Louw, Q., Ferreira, M.L., Genevay, S., et al., 2018. What low back pain is and why we need to pay attention. Lancet 391, 2356–2367, 10137.
Hayden, J.A., Dunn, K.M., van der Windt, D.A., Shaw, W.S., 2010. What is the prognosis of back pain? Best Pract. Res. Clin. Rheumatol. 24 (2), 167–179.
Hilfiker, R., Bachmann, L.M., Heitz, C.A.M., Lorenz, T., Joronen, H., Klipstein, A., 2007. Value of predictive instruments to determine persisting restriction of function in patients with subacute non-specific low back pain. Systematic review. Eur. Spine J. 16 (11), 1755–1775.
Lee, H., Mansell, G., McAuley, J.H., Kamper, S.J., Hübscher, M., Moseley, G.L., et al., 2017. Causal mechanisms in the clinical course and treatment of back pain. Best Pract. Res. Clin. Rheumatol. 30 (6), 1074–1083.
Linton, S.J., 2000. A review of psychological risk factors in back and neck pain. Spine 25 (9), 1148–1156.
Linton, S.J., Shaw, W.S., 2011. Impact of psychological factors in the experience of pain. Phys. Ther. 91 (5), 700–711.
Mixter, W.J., Barr, J.S., 1934. Rupture of the intervertebral disc with involvement of the spinal canal. N. Engl. J. Med. 211 (5), 210–215.
Morton, L., de Bruin, M., Krajewska, M., Whibley, D., Macfarlane, G.J., 2019. Beliefs about back pain and pain management behaviours, and their associations in the general population: a systematic review. Eur. J. Pain 23 (1), 15–30.
NICE, 2016. Low back pain and Sciatica in Over 16s: assessment and Management. National Institute for Health and Care Excellence: Clinical Guidelines. 2016. London: National Institute for Health and Care Excellence (UK).
Pierobon, A., Policastro, P.O., Soliño, S., Andreu, M., Novoa, G.A., Agustín, R.I., et al., 2020. Beliefs and attitudes about low back pain in Argentina: a cross-sectional survey using social media. Musculoskelet Sci. Pract. 49, 102183.
Pinheiro, M.B., Ferreira, M.L., Refshauge, K., Maher, C.G., Ordoñana, J.R., Andrade, T.B., et al., 2016. Symptoms of depression as a prognostic factor for low back pain: a systematic review. Spine J. 16 (1), 105–116.
Ramond, A., Bouton, C., Richard, I., Roquelaure, Y., Baufreton, C., Legrand, E., et al., 2011. Psychosocial risk factors for chronic low back pain in primary care-a systematic review. Fam. Pract. 28 (1), 12–21.
Saraceni, N., Kent, P., Ng, L., Campbell, A., Straker, L., O'Sullivan, P., 2020. To flex or not to flex? Is there a relationship between lumbar spine flexion during lifting and low back pain? A systematic review with meta-analysis, 50(3):121–30. https://doi.org/10.102519/jospt20209218.
Steffens, D., Maher, C.G., Pereira, L.S.M., Stevens, M.L., Oliveira, V.C., Chapple, M., et al., 2016. Prevention of lowback pain a systematic review and meta-Analysis. JAMA Intern Med. 176 (2), 199–208.
Swain, C.T.V., Pan, F., Owen, P.J., Schmidt, H., Belavy, D.L., 2020. No consensus on causality of spine postures or physical exposure and low back pain: a systematic review of systematic reviews. J. Biomech. 102, 109312.
Traeger, A.C., Buchbinder, R., Elshaug, A.G., Croft, P.R., Maher, C.G., 2019. Care for low back pain: can health systems deliver? Bull. World Health Organ. 97 (6), 423–433.
Verbeek, J., Takala, E.P., Martimo, K.P., Viikari-Juntura, E., Kuijer, P.P., Karppinen, J., 2011. Manual material handling advice and assistive devices for preventing and

treating back pain in workers: a Cochrane Systematic Review. Occup. Environ. Med. 69 (1), 79–80.
Vlaeyen, J.W., Linton, S.J., 2000. Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. Pain 85 (3), 317–332.
von Elm, E., Altman, D.G., Egger, M., Pocock, S.J., Gøtzsche, P.C., Vandenbroucke, J.P., 2007. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Lancet 370 (9596), 1453–1457.
Wai, E.K., Roffey, D.M., Bishop, P., Kwon, B.K., Dagenais, S., 2010. Causal assessment of occupational bending or twisting and low back pain: results of a systematic review. Spine J. 10 (1), 76–88.
Walker, B.F., 2000. The prevalence of low back pain: a systematic review of the literature from 1966 to 1998. J. Spinal Disord. 13 (3), 205–217.
Wertli, M.M., Eugster, R., Held, U., Steurer, J., Kofmehl, R., Weiser, S., 2014a. Catastrophizing—a prognostic factor for outcome in patients with low back pain: a systematic review. Spine J. 14 (11), 2639–2657.
Wertli, M.M., Rasmussen-Barr, E., Held, U., Weiser, S., Bachmann, L.M., Brunner, F., 2014b. Fear-avoidance beliefs—a moderator of treatment efficacy in patients with low back pain: a systematic review. Spine J. 14 (11), 2658–2678.
Wieser, S., Horisberger, B., Schmidhauser, S., Eisenring, C., Brügger, U., Ruckstuhl, A., et al., 2011. Cost of low back pain in Switzerland in 2005. Eur. J. Health Econ. 12 (5), 455–467.