

Eliciting Salient Beliefs About Physical Activity Among Female Adolescent in Saudi Arabia: A Qualitative Study

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To cite this article:

Basmah Fehaid Al-Harbi, Manal Fehade Al-Harbi. Eliciting Salient Beliefs About Physical Activity Among Female Adolescent in Saudi Arabia: A Qualitative Study. *World Journal of Public Health*. Vol. 2, No. 3, 2017, pp. 116-123. doi: 10.11648/j.wjph.20170203.15

Received: July 9, 2017; Accepted: July 17, 2017; Published: August 9, 2017

Abstract: The present study aimed to explore the salient beliefs of female adolescent in Saudi Arabia that may influence their intentions with regards to engagement in physical activity. The three constructs of Theory of Planned Behaviour were used to identify the behavioural, normative and control beliefs that influence the decision to engage in physical activity. Open-ended interviews were conducted by Skype with 25 students during June 2016. Twenty-one modal salient beliefs were identified that influenced whether or not participants decided to engage in physical activity. These included behavioural beliefs (e.g. physical activity relieves stress) normative beliefs (derived, e.g., from social media) and control beliefs (e.g. weather and lack of suitable female facilities are obstacles to physical activity). The Saudi government's new roadmap for economic and social development that targets improving female access to sport, health interventions should target the salient beliefs explored in this study. Additionally, its findings should guide further theory-based quantitative research in this area when structuring closed-ended questionnaire items.

Keywords: Saudi Arabia, Physical Activity, Beliefs, Salient, Female, Theory of Planned Behaviour

1. Introduction

Physical activity (PA) is conducive to good health and wellbeing [1]. By contrast, physical inactivity (PIA) is the fourth leading risk factor for worldwide mortality, accounting for 6% of global deaths [2]. PIA levels have been found to ascend as income increases, with 48% of females being physically inactive in high-income countries, as compared to 21% in low-income countries [3]. The lowest levels of PA have been detected in the Kingdom of Saudi Arabia (KSA), where only 2% of females were found to be physically active [4]. Over the last decade, Saudis have experienced a significant improvement in their standard of living, accompanied by an increasingly sedentary lifestyle [5]. The prevalence of PIA is currently very high: approximately 66.6% for the general population and 72.9% for females [6]. Previous studies have reported that engagement in PA can be influenced by behavioural beliefs about the likely outcome of a behaviour, normative beliefs about the opinions of others in relation to that behaviour and control beliefs about the

presence and power of factors which facilitate or impede their ability to perform the behaviour [7, 8, 9]. Understanding these factors, which together underpin individual intention toward a particular behaviour [10], is essential for understanding Saudi female's willingness to engage in PA.

Globally, several attempts have been made to address the beliefs that influence individual participation in PA, and investigating the beliefs of different communities and cultures is an ongoing concern within the health promotion domain. A quantitative elicitation study by Rhodes [11] to determine the salient behavioural beliefs of Canadian women in relation to leisure-time walking found that the expectation that PA, although time-consuming, helps people keep fit, feel good, look well and relieve stress was significant ($p < .01$). A subsequent qualitative study undertaken in the USA among Somali women ($n = 30$) found that the factors underlying control beliefs about PA were lack of women-only gyms, unfamiliarity with sports equipment and transportation and financial constraints [12]. An earlier study by Koca [13] using focus groups identified

various social influences that hindered female participation in PA, such as lack of social support and social disapproval within the community. Similarly, in a cross-sectional study (n = 94 females) to determine the social barriers to PA among Saudi university students, 32% of participants confirmed that lack of encouragement from the university hindered PA [14]. Williams study suggested that health outcomes are affected by different beliefs in different cultures [15]. In developed countries such as Canada and the US, for example, behavioural and control beliefs predominate while in Middle Eastern countries (e.g. Turkey and KSA) social beliefs were most relevant. It is therefore difficult to generalise about the influence of beliefs between different populations.

2. Theoretical Background

It is important to recognise the underpinning concept and framework that can be used to guide the study. The Theory of Planned Behaviour (TPB) has been chosen as the behavioural framework of the study [16], which was proposed by Ajzen and Fishbein (1980). Additionally, the theory was further developed by Ajzen (1991) in the presumption that a person's behaviour is influenced by three independent conceptual elements: Attitudes (which consider a person's assessment in regard to do a specific behaviour) Subjective norms (which consider a person's perception with regard to how other people who are important to them think they ought or ought not do a specific behaviour, a type of social pressure). Perceived behavioural control (which relates to the presence of factors, which deter or enable people in terms of behavioural engagement and their perception of their ability to control these factors. This model has been developed in Western countries, however it can provide valuable guides for conducting a study in Kingdom of Saudi Arabia since that, for many times research has been successfully utilised and applied this model in different countries; Greece, United Kingdom, Singapore and Poland [17] and few studies in Saudi Arabia [18].

A range of evidence indicates that the Theory of Planned Behaviour (TPB) is the best theoretical framework for understanding the factors influencing the adoption of a health behaviour [16] including PA [19] TPB states that behavioural

intention is influenced by three independent conceptual elements: attitude, subjective norms and perceived behavioural control (PBC). Attitude refers to the individual's perception of the negative or positive outcomes of performing a behaviour, subjective norms refer to the individual's beliefs about social pressure to engage or not engage in the behaviour and PBC refers to the individual's perception of the ease or difficulty of adopting a behaviour [16].

Applying TPB can help identify the underlying beliefs that influence the three essential predictors of intention. In the absence of any elicitation study focusing on this area, this qualitative study aimed to explore the modal salient behavioural, social norms and control beliefs of Saudi female adolescent that influence their intention to participate into PA. Additionally, the salient beliefs identified in this study can be used to inform further quantitative research on the TPB elements associated with intention to engage in PA.

3. Methods

3.1. Study Design

This study adopted a descriptive qualitative approach with individual open-ended interviews using the three conceptual elements of TPB [20] as the framework for determining the modal salient beliefs. Using a quantitative design with closed-ended questionnaires or self-reporting scales can limit the answers participants provide; for example, they may state what they think the researchers want to hear [21]. After considerable reading on research methodology in this area, this study adopted a qualitative design, which provides in-depth understanding of the effect of long-term beliefs on health behaviours [10, 22]. As recommended by Fishbein and Ajzen [23] the interviews employed six open-ended questions (Table 1), stated in terms of the target behaviour and followed by a paragraph describing that behaviour. These questions, were widely used in many investigational studies regarding engagement into PA [19, 21] and designed by Fishbein and Ajzen [23] for use in this type of the elicitation study.

Table 1. Open-ended questions used to determine salient beliefs about physical activity.

Constructs	Questions
Behavioural Beliefs	What do you believe are the pros of exercising i.e. 30 minutes of moderate-intensity physical activity five days a week OR 25 minutes of vigorous-intensity physical activity three days a week and OR a combination of both during leisure time?
	What do you believe are the cons of exercising i.e. 30 minutes of moderate-intensity physical activity five days a week OR 25 minutes of vigorous-intensity physical activity three days a week and OR a combination of both during leisure time?
Normative Beliefs	Which people would approve of or support exercising i.e. 30 minutes of moderate-intensity physical activity five days a week OR 25 minutes of vigorous-intensity physical activity three days a week and OR combination of both during leisure time?
	Which people would disapprove of exercising i.e. 30 minutes of moderate-intensity physical activity five days a week OR 25 minutes of vigorous-intensity physical activity three days a week and OR a combination of both during leisure time?
Control Beliefs	What circumstances would enable you to be physically active i.e. perform 30 minutes of moderate-intensity physical activity five days a week OR 25 minutes of vigorous-intensity physical activity three days a week and OR combination of both during leisure time?
	What circumstances would deter you from performing 30 minutes of moderate-intensity physical activity five days a week OR 25 minutes of vigorous-intensity physical activity three days a week OR a combination of both during leisure time?

3.2. Study Population

Participants were recruited from a public Saudi university. The gatekeeper sent an electronic participant information sheet and participant reply links constructed using (<https://drive.google.com/drive>) by email to all potential participants.

Involving 25 participants aged 18-20 years old, the sample meets the size ($n \geq 25$) recommended by Ajzen and Fishbein (1980) [20] and Francis [24] for studies designed to elicit salient beliefs. A non-probability convenience-sampling mode was as a simple way to conduct the study within a limited timeframe and budget [22]. University students were selected as the study population for the following reasons: The sample is feasible, as all participants have learned English as their second language and Universities are well placed to encourage health promotion initiatives [14]. Data collection process utilized Skype a social media application. Skype is a provider of free calls and video conversation services which was used to conduct the interviews. Each interview lasted 30-45 minutes. The criteria for inclusion in the study were: (1) Saudi females, (2) aged ranged between 18-20 years, (3) able to read and write in English and (4) registered at the University. Hence, the exclusion criteria were (1) males (2) under 18 years of age, (3) unable to read and write in English and (4) not registered at the University.

3.3. Pilot Study

A pilot study was performed with the first subject who agreed to participate to assess the efficacy of the Skype tool in relation to time zone, audio recording facility and interviewing in English. Consequently, additional probes were developed for each question and incorporated into the interview protocol, enabling more fluid and far-reaching interviews.

3.4. Data Analysis

Ajzen [25] suggested using a content analysis approach to identify salient beliefs. Accordingly, this study adopted Burnard's (1991) framework [26], the most common thematic content analysis approach for qualitative studies, to create beliefs categories according to a) salient 'pro and con' outcomes, b) lists of groups who approve and disapprove of PA and c) salient circumstances that enable or hinder PA. The researcher transcribed the interview audio recordings verbatim to develop the code list and themes, which were then reviewed by an independent researcher. Following Burnard (1991), a cut-and-paste technique was used whereby transcripts were divided into sections and grouped under the three main headings. The responses for each section were then analysed and sorted into logical subcategories of beliefs. Each belief was then analysed and categorized under logical themes. Additionally, Fishbein and Ajzen [23] have suggested that beliefs are identified by collating responses with similar outcomes and checking the frequency with

which each item was recorded. Once a list of codes is developed, a final decision is made regarding salient beliefs through frequency analysis, i.e. selecting beliefs identified by at least 30% of the answers [20].

3.5. Content Validity

For trustworthiness, Lincoln and Guba's (1985) criteria [27] for evaluating qualitative research were employed to enhance trustworthiness. Firstly, *credibility* was enhanced by piloting the study and using secure transparent coding methods during data analysis. Additionally, all the transcripts were returned to participants for verification and were reviewed by an independent researcher. *Transferability* was maintained through an itemised description of the study design and methodology designed to facilitate replication in different settings. *Dependability* was secured through the transparent coding method, while *confirmability* was enhanced by adopting the recommended sample size [20, 24], ensuring the sample was large enough to reflect the perceptions of the participants and avoid bias. Employing open-ended interviews and the interview protocol also helped to avoid potential bias. An audit trail was developed to assure the quality of qualitative studies [28] and to achieve dependability and confirmability simultaneously [27].

3.6. Ethical Considerations

Ethical approval was obtained from the gatekeeper of the university in KSA. The participation was voluntary, confidentiality and anonymity was maintained. Informed consent was obtained electronically before beginning each interview. Only anonymous interview transcripts were shared with the study team. All electronic and audio-recorded information was stored safely at all times on the researcher's password-protected computer and backed up on a portable hard disk kept in a locked filing cabinet. All data will be destroyed after ten years. Conducting individual interviews by Skype is very unusual in KSA, as it is in many other conservative communities. Anticipating apprehension amongst some potential participants, only the age, gender and nationality were recorded to encourage involvement.

4. Result

Twenty-one salient beliefs exceeded the 30% threshold recommended by Ajzen and Fishbein (1980). These comprise 16 themes that reflect behavioural beliefs, social norms beliefs and control beliefs, as shown in Tables 2, 3 and 4 respectively.

4.1. Salient Behavioural Beliefs

Table 2 shows nine salient behavioural beliefs were categorised under six main themes in which seven are positively worded and two are negatively worded. Participants were generally aware of the impact of PA on chronic health conditions.

Table 2. Selected salient behavioural beliefs among Saudi female adolescent regarding physical activity by TPB components.

Main themes	Rank	Perceived advantages	Mentions	% of responses	Direction
Medical purposes, promotion of health and wellbeing	1	Reduces risk of diseases	14	56%	+
	2	Improves health	14	56%	+
	3	Enhances fitness level	8	32%	+
Psychological status	4	Relieves stress	14	56%	+
	5	Generates positive feelings	8	32%	+
Body image	6	Helps lose weight and control weight	11	44%	+
Social life	7	Provides opportunity to meet new people	9	36%	+
Time	1	Consumes too much time	17	68%	–
Fatigue	2	Leaves one feeling exhausted	8	32%	–

Many (56%) expressed the view that having a family history of chronic disease put them at risk and that their engagement in PA would reduce that risk:

I think physical activity is fun and it prevents some chronic diseases, which is a concern for me because I have a family history of chronic disease. (P10)

Other perceived health benefits of PA included improved health, enhanced fitness, stress relief and positive feelings. Weight loss and weight control were the most frequently mentioned benefits (44%).

Due to cultural restrictions regarding where girls can socialise publicly, some participants (36%) considered engaging in PA a good opportunity to make friends:

In the past, when I used to go to the gym, I met new people from different cultures, different countries. (P16)

Others disagreed:

I do not think physical activity is a way to make new friends. (P12)

In terms of disadvantages, many participants (68%) felt that PA was time consuming. For some, particularly students during exam periods, this was a very important consideration:

My main problem is time [...] studying takes most of my

time, so physical activity consumes my time. (P7)

Others, however, argued that PA helps them to concentrate:

I think physical activity makes me able to study, read and finish many tasks in a short time. (P11)

Feeling exhausted was another negative belief that influenced engagement in PA, especially during menstruation:

During my period, I think doing physical activity puts me at risk of feeling tired. (P13)

Sometimes physical activity makes me tired, especially after a long working day. (P11)

Interestingly, 3 of the 25 interviewees believed there were no disadvantages to engage in PA:

I do not believe there are any disadvantages of exercise! Provided I can treat it as a helpful part of my day not as a duty. (P14)

4.2. Salient Normative Beliefs

Four salient normative beliefs were categorized under three main themes, as shown in Table 3, all are positively worded.

Table 3. Selected salient normative beliefs among Saudi female adolescent regarding physical activity by TPB components.

Main themes	Rank	Salient normative beliefs (Sources of normative beliefs)	Mentions	% of responses	Direction
Social media influencers	1	People on social media	18	72%	+
Peers	2	Friends	13	52%	+
Family members	3	Sister	14	56%	+
	4	Mother	9	36%	+

Eighteen participants (72%) referred to people on social media as a key influence on their decisions to engage in PA. Some stated that seeing popular bloggers, Instagrammers, YouTubers and Snapchatters engaging in PA or talking about the importance of exercise made them feel that they too should be physically active:

When I see social media influencers doing physical activity and talking about physical activity I feel I have to do physical activity. (P4)

I watch many bloggers and YouTubers and I want to be like them and to have the same healthy lifestyle. (P12)

Over half (56%) cited their sisters as important motivator, while more than a third (36%) considered their mother to be

a key influence. Family members were not the only significant influence on participants, however many (52%) stated that their friends motivated them to be physically active. Interestingly, only 20% of participants reported that family members or friends disapproved of them taking part in PA, while 28% had encountered no disapproval at all.

4.3. Salient Control Beliefs

Eight salient control beliefs were categorised under seven themes, as shown in Table 4. Four are positively worded; the others are negatively worded.

Table 4. Selected salient control beliefs among Saudi female adolescent about engaging in physical activity by TPB components.

Main themes	Rank	Salient control beliefs (enabling)	Mentions	% of responses	Direction
Internet and media	1	Online sport videos	19	76%	+
External motivators	2	Ability to do physical activity by myself without need for sport machines	18	72%	+
	3	Having sport machines in the house	8	32%	+
	4	Islamic faith	8	32%	+
Climate constraints	1	Inconvenient summer weather	17	68%	-
Environmental constraints	2	Lack of suitable sport facilities	15	60%	-
Time constraints	3	Lack of time	13	52%	-
Restrictive clothing	4	Wearing an abaya	11	44%	-

Of the factors that enabled engagement in PA, the most commonly mentioned (76%) was online exercise videos:

Watching some exercise videos on YouTube helps me somehow. (P8)

External motivators were reported by various Saudi female. Almost three-quarters (72%) of participants, for example, believed that physical activity does not require sports equipment:

I am able to do exercise at home without any equipment. (P11)

However, almost a third (32%) stated that having sports machines facilitated their engagement in exercise:

Owning my own equipment enables me to be active. (P25)

Internal motivation was also a factor. Roughly, a third (32%) of participants stated that their faith and the recommendations of the Prophet Mohammed made it easy for them to commit to PA:

As a Muslim I think being active is part of my Islamic faith and the recommendations of the Prophet Mohammed have encouraged me to do physical activity. (P14)

On the other hand, a significant number (68%) reported that 'the hot weather is a barrier' (P5), while others (44%) mentioned wearing an abaya (the black cover from head to toes for Muslim women) was a deterrent:

It is not easy to run while wearing [an abaya] in front of everyone. (P3)

Lack of suitable, affordable, conveniently located sports facilities for females was another significant barrier. Participants repeatedly insisted that those that were available did not cater for their needs:

In my neighbourhood, there are no suitable gyms that cater to my requirements or demands. When I was in Riyadh, there were many high quality gyms. (P9)

While lack of time was more limiting for some participant (52%) than for others most of the interviewees were unwilling to engage in PA when they were studying.

5. Discussion

While these findings are consistent with those of previous studies [12, 21], they also identify new salient beliefs that could influence a woman's intention to engage in physical activity within Saudi culture. The desire to reduce the risk of chronic and other diseases and the influence of others, especially in the media, were uncovered as important predictors of intent. Other factors, such as the availability of

free online sports videos and an individual's religious faith as enablers and the deterrent effect of wearing an abaya, have not been raised previously. The salient behavioural beliefs identified in Table 1 (i.e. the perception that PA enhances fitness, relieves stress and is time consuming) mirror the findings of Rhodes study of Canadian women [11]. Interestingly, only two of the beliefs identified in this study, that taking part in PA provides an opportunity to make friends and that it is time consuming, were associated with the Australian population [29]. This difference may be explained by cultural restrictions on females socialising with strangers in KSA.

Comparing these findings to those of previous studies makes clear that each society has its own set of beliefs about certain behaviours. For example, there was surprisingly no similarity between the results of a study in the US by Brown [30] and those of the current study. By contrast, research by Middlestadt [21] also conducted in the US, identified two beliefs about PA (that it controls weight and that it is time consuming) that support the findings of the current study. Comparative analysis of the two American studies revealed no similarities.

A research in Saudi Arabia [31] showed that Saudi females idealise a skinny body shape and will engage in PA of any kind for the good of their health. This may explain why participants in this study stated that they were motivated to engage in PA in order to lose weight and control weight, reduce the risk of chronic diseases and other diseases and improve their health. Physical activity is said to be energising, but surprisingly (32%) of participants in this study expected PA to be physically exhausting. That said, the same proportion (32%) believed that PA produces positive feelings, which they identified as a predictor of their intention to engage in it. As this result has not been described previously, further research should be undertaken to identify and investigate the extent to which fatigue, exhaustion and positive feelings influence Saudi female to engage in PA.

The normative beliefs expressed in this study appear to be at odds with those held by females in Turkey and the US, such as social disapproval, lack of social support and lack of support from family and friends [13, 32]. Participants in this study particularly identified their sisters (56%), friends (52%) and mothers (36%) as major catalysts for their decision to adopt a healthy lifestyle, including engaging in PA. The fact that in traditional Saudi culture, close-knit families are appreciated and females socialise and communicate only

with other females may explain the strong influence of these women on participants' choices in relation to PA.

One unanticipated finding was that social media influencers have the strongest impact (72%) on the intention of participants to engage in PA. A systematic review [33] by Williams of research to date appears to indicate low levels of participation by the general population in healthy lifestyle interventions using social media. The findings of the current study do not support this conclusion. Furthermore, no evidence of the influence of the media on engagement in PA was detected. Although Samara study [14] found that lack of encouragement from social networks hindered engagement for 13% of Saudi women, the result was not statistically significant. Given that the current study found that media influence was a strong motivator for Saudi female adolescent, further study is required to identify what features of social media can be used to increase PA.

Among control beliefs, the enablers of PA identified in this study were similar to those reported previously [34], such as the ability to take part in PA without using sports machines or having sports machines at home. The influence of access to free online sports lessons has not been reported previously, however. In the absence of policies aimed at enhancing the level of PA among Saudi females, the internet, which is considered a tool for learning, communicating and entertainment, was widely used by women to help them engage in a healthy lifestyle and take part in PA. This would explain why the media was the strongest influence on Saudi female intention toward PA.

The most interesting finding was the contradiction between Islamic faith as a religious enabler and wearing an abaya as an inhibitor of PA, even in Westernised societies [12]. Saudi Arabia is a Muslim country, and the Islamic faith has a strong influence on a person's lifestyle. Islam and religious texts in the Hadith and the holy Qur'an instruct and encourage Muslims to protect their spiritual, emotional, physical health and be physically active. At the same time, however, women taking part in outdoor PA must preserve their modesty. The findings indicate that many of the barriers identified in this study (weather, lack of suitable facilities, time constraints and wearing the abaya) could be overcome with the provision of female-only PA programmes in schools and universities, and by constructing public community centres, which guarantee privacy and convenience.

No study without strengths or limitations. This study highlights the importance of understanding the factors underlying the perceptions of Saudi females with regard to participating in PA through a model set of salient beliefs that shape female behaviour towards PA. However, as this is a qualitative study, the generalisability of its findings is potentially limited. The data were collected from a single university in Saudi Arabia, making it difficult to generalise the findings to other settings in KSA or beyond. That said, the university from which participants were drawn is a public university that attracts students from other cities in the central region. While this feature enhances the validity of the findings, as the study body is likely to be representative of

the wider population, the beliefs expressed by study participants are likely to be representative of the immediate community of Saudi females aged 18 and over, and may not reflect the beliefs of Saudi female living in other regions of KSA or older females. Additionally, conducting interviews principally in English may have limited the response received on some topics. That the principal researcher was familiar with the subject area and could facilitate the interview and response when necessary was felt to outweigh this limitation.

A key strength of the study lies in its data collection method. Although using technology to interview participants is not common in the qualitative domain, this study was conducted through Skype and used an electronic consent form and information sheet, enabling the researcher to overcome the distance from study participants, saving time and money. A similar approach could be used to conduct such research in different settings around the world. Additional strength point, a link between PA and religious practices is established in this study; therefore, specific health promotion intervention programmes target those beliefs could use this information. There is a significant lack of instruments, particularly targeting Saudi female, with which to measure the factors that enable and/or deter females from being physically active. With few studies being undertaken amongst Saudi female and, to the researcher's knowledge, with no previous published research exploring the factors underlying personal beliefs about PA utilising the three main items of TPB, this study clearly fills this gap.

6. Conclusions

This study successfully elicited the modal salient behavioural, normative and control beliefs of Saudi females aged 18 and over regarding engagement in PA. Some factors, such as time and weather constraints, fatigue, lack of suitable gyms and wearing an abaya, limited their intention to participate in PA. Other factors, such as social media influencers, access to the internet and individual religious beliefs, motivated them to be physically active. As these are new salient beliefs that have not been identified previously, this study makes an original contribution to the current literature on PA promotion.

Implications for Practice and Policy

Due to the lack of a clear national plan and policies to increase the level of PA among females in KSA [35], Saudi women may hold erroneous beliefs regarding its benefits. Health behaviour theory is therefore fundamental for developing a better understanding of the factors underlying beliefs about PA. The findings from this study can guide policy makers tasked with promoting PA initiatives to address the specific needs of Saudi females to control and improve their environment, thereby enhancing their intentions to participate in PA. Creating more culturally sensitive PA facilities for Saudi female and implementing public, university and school-based health promotion initiatives and PA programmes could be of great value in this regard. Saudi Arabia's Vision 2030 [36] provides a vehicle

for enhancing female engagement in various forms of PA. This study identifies beliefs that will help guide the pioneers of those initiatives.

Recommendations

This is the first study to explore the salient beliefs of Saudi female adolescent aged 18 and over regarding engagement in PA. For comparative purposes, it is recommended that further research be undertaken to construct a set of modal salient beliefs associated with the intention of Saudi female in other parts of the country to engage in PA. Future research should identify the modal set of salient beliefs of the specific social group, with particular focus on variations by age, socioeconomic status and health status within the same society, with the aim of informing quantitative studies to determine their influence on the intent of participation into PA.

In future investigations, it might be possible to use a cross-cultural sample, allowing researchers to discover whether there are significant cross-cultural differences between Saudi and other populations such as Western that can account for the results, even within the same communities and populations. Additionally, these findings can be used as means of developing a wide range of theory-based quantitative studies designed to measure the influence of these beliefs on Saudi female's engagement in PA, and thereby to inform initiatives promoting PA in KSA.

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