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Systematic Review of Performance Mental Skills Training Using Techniques from Sport Psychology in Health Professions Education

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Abstract* - Because of the high standards placed on them, health professionals are often put under a great deal of stress that may have a negative effect on their ability to provide excellent care in a variety of challenging clinical settings. The field of sport psychology is increasingly incorporating the usage of performance mental skills (PMS) into its curriculum, particularly in the lead-up to and during competition. The 20 studies that were reviewed all found that PMST has the potential to boost performance, particularly in simulated environments. The major elements of the implementation were a face-to-face group lesson presented by a trainer with expertise with PMS, and the use of a multimodal approach using a number of different PMS. 5 lessons, each lasting a mean of 57 minutes, with individualised instructor guidance, PMS practise, and an emphasis on portability. Despite the potential value of the review's key implementation components as a guide for future PMST, further study is needed to fill in the gaps in our understanding of the effectiveness of PMST and its primary implementation components, particularly in practical settings.

***Keywords* - Performance stress; sport psychology; mental skills; training**

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INTRODUCTION

Every nation in the world depends on its educational system; a strong and efficient education may accelerate national growth. Education is the method of teaching intended at the whole development of people, giving them the skills and information needed to comprehend and take part in daily activities in the modern world. It eliminates ignorance and elevates people's moral standards. It's the only form of riches that cannot be taken. It bolsters mental fortitude, develops character, and broadens knowledge.[1]

In fact, psychological stability is a significant predictor that may help explain good academic accomplishment. Therefore, it is necessary to monitor and assess the students' psychological wellbeing. The results of this type of study may be utilised to create methods and tactics that will aid students in achieving academic success. Students frequently experience psychological issues including depression, stress, and anxiety.[2]

Personality development is a very important factor for any individual. This is through personality development the character, skills and qualities of the personalities can be groomed and used successfully. High school years provide best opportunities for student to learn several essential components of personal development. The student could learn self-confidence, discipline, time management and team work, decision making and planning. Although all the personal development elements are minor level, but they play a very crucial role for the future personal and career development of the students.[3]

The student's physical, mental, and emotional well-being at the time of learning, as well as how they applied what they had learned, had a significant role in how successful their academic performance was. As a result, proper attention should be paid to the student's improvement of both physical and mental health. Additionally, they need to be taught how to properly control their emotions. To the greatest degree feasible, test anxiety, stress, and sadness should be decreased or eliminated in order to improve memory, which greatly adds to academic accomplishment.[4-5]

Sport psychologists have proposed the term "peak mental and physical state," or PMS, to describe the set of skills necessary to maintain high levels of alertness in the face of pressure. This rule of thumb minimises confusion caused by the wide variety of terms used in the literature, which may vary from "psychological aptitude" to "mental skills" to "pre-performance practises." These expressions are often used to refer to broad skills with a focus on enhancing wellbeing, such as mindfulness meditation, as well as more specialised "in the moment" talents supplied between performances. Misunderstandings may also arise from the term "warm up," which refers to a combination of

behavioural and cognitive abilities that serve to get one physically and mentally ready for an activity.[6]

Those who teach in the health professions and are interested in applying sport for PMS education PMST should have a solid understanding of how to implement the training, with a focus on the most important components. A recent analysis of programmes for young surgeons revealed that training in applied sport psychology was among the most helpful. the training's restricted implementation details and also its consequences on diagnostic practice in real-world circumstances were highlighted, however, in a subsequent evaluation. Both analyses highlight substantial information gaps in the area of PMST's efficient application to HPE.[7]

Not much work has been done either to identify the critical features of training implementation that are associated to substantial clinical benefits. Health-related quality has been singled out, even though there are other demanding and stressful clinical situations that may have been included. The purpose of this investigation was to systematically assess the efficacy of PMST in HPE.[8-9]

REVIEW OF RELATED LITERATURE

Daniels and Hewitt (2021)[10] used a specimen of 48 (27 female, 21 male) students whose test & anxiety scores were obtained to examine the effects of various test anxiety levels on actual classroom test performance and to determine whether the relationship among test anxiety & classroom performance was consistent across sexes. There was no statistically significant difference between the sexes concerning the negative association among test and academic achievement, according to the analysis's findings, which indicated that more girls then boys reported high test anxiety. This suggests that neither gender was considerably more affected than the other by the negative impact of anxiety disorders on academic achievement.

Verma (2019)[11] to determine how anxiety affected academic performance. The sample included 69 underachievers and 36 high performers. With the use of the Keele academics motivation questionnaire & test-anxiety inventory, academic motivation & test anxiety were assessed. According to the study, high achievers were much more motivated to succeed academically than their counterparts in low achievement. However, there were no discernible variations in test anxiety between high scorers and poor achievers.

Dawood (2020)[12] stress among students has an impact on their academic performance. He also demonstrated that anxiety and stress connected to school were the two types of stress that students most commonly cited. In reaction to a range of growing-up concerns, a lot of teens have a tendency to become nonconformists and succumb to teenage depression. However, anxieties and anxiety brought on by stress have a negative impact on students' achievements at different levels.

Murphy & Archer (2018)[13] discovered that how students perceive their stress can have a big impact on how serious it is. Students are physically and psychologically harmed when stress is extreme or viewed negatively. It has been shown that excessive stress among children decreases their ability to learn effectively, which encourages bad behaviours and has detrimental long-term effects including absenteeism, subpar academic performance, or school dropout.

METHODS

The PRISMA declaration was adhered to and all "best practises" for systematic reviews were used to conduct this study. The research was completed for Edge Hill University's Health and Social Care Department. As this literature review did not include gathering any primary data, an additional ethical evaluation was unnecessary.

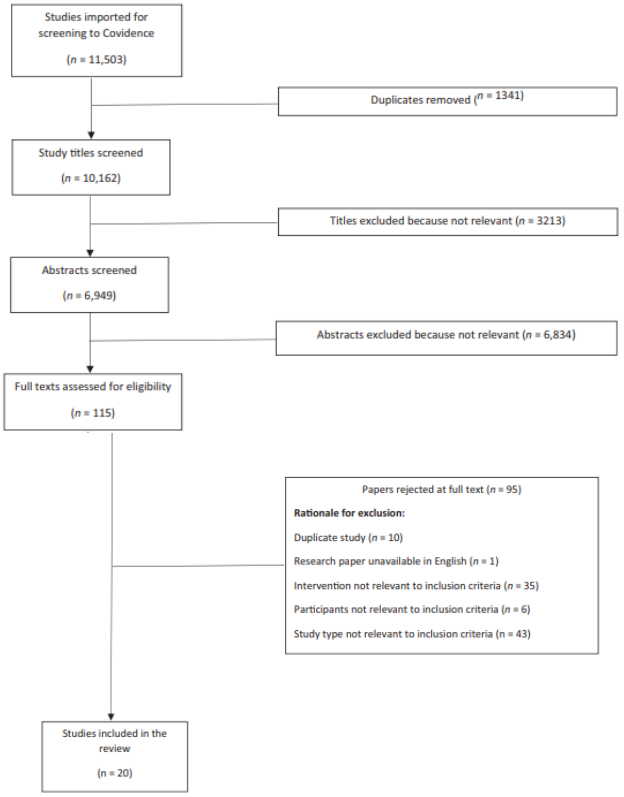

Figure 1. A PRISMA workflow is depicted.

Choosing Studies To Be Reviewed

After having the titles and abstracts of all potential studies reviewed by two reviewers, we were left with only those that were clearly irrelevant. The remaining papers were each read in their entirety by two reviewers, who then discussed their disagreements with a third party.

Finding pertinent articles

Reviewers with backgrounds in allied health education, sport psychology, graduate or undergraduate medical training, and systematic reviews were recruited for this study. The study team, which included a seasoned expert in health information & evidence synthesis, conceived up the review's search technique. Three primary ideas served as the basis for the search parameters: demographics, treatment, and results. Based on these ideas, the study team proposed possible search phrases, and they complemented them with terms taken from several other prominent HPE & sport psychology studies. Initial work on MEDLINE's search method included merging regulated and uncontrolled languages with free-text phrases. The effectiveness of the primary strategy for searching MEDLINE was evaluated. The final set of database-specific search phrases was tailored to suit individual database's needs.

It's unclear whether or whether the treatments took place in a simulated or actual clinical environment. The research did not cover "warming up" or exercising for overall cognitive wellness. The term CS was used to categorise the results of clinical performance assessments, with further subdivision into "open" and "closed" CS. Closed skills, like those required for a golf swing or even a tennis serve, are executed at one's own pace and with great accuracy in a sterile environment. Sprinting in the last laps of a bike race and scoring a goal in a soccer game are two examples of open skills that are done in a more fluid setting.

Data extraction

The research group as a whole created a data extraction template to keep track of information on each study's methodology, sample size, demographics, implementation details, PMS or CS results, and authors' suggestions for the future. Each research was graded on how well it was planned and executed using Gagne's Nine Events of Training and the Template of Treatment Formulation or Replication. Its usefulness was assessed in light of a questions asked or the responses provided, with special focus on the relevance of the impact size on the planned PMS and CS. The MERSQI was used to evaluate the quality of each study's qualitative data. Study design, sample, data type, assessment validity, data processing, and outcomes are the six research quality categories to which the ten variables relate. Results from different studies may be compared with ease because to the MERSQI's wide range of possible scores (5–18). Each study's reporting of training interventions was graded on five criteria as high, questionable, or poor. Prior to this, a visual ranking method was used to convey the data.

One reviewer mapped out the first five studies to serve as a template for the extract sheet, and the rest of the team debated and made adjustments from there. The research team split into two halves, each with their own leader reviewer, and began the data extraction process. An someone versed in sports and performance psychology guided each of the extraction groups. as well as in research and therapeutic practise. For each manuscript given to their group, the lead reviewers first completed a "extraction templates" document. The remaining members of the extraction group then collaborated on the second reviewer duties for the research that had been allocated to them. Each publication's extraction procedure was agreed upon by the extraction group, or a third reviewer was called were all compiled and interpreted. The primary reviewers conducted the initial analysis, and the research group ultimately agreed on the review's purpose. Results Twenty studies were identified to be relevant to the investigation, with six focusing on open clinical skills and fourteen focusing on closed clinical abilities.

Five publications were charted by one reviewer to test the extract sheet, and the sheet was modified based on comments from the study group. During data collection, the research team separated into two factions, each with its own designated chief investigator. A member of the review panel with expertise in sports/performance psychology was included in each extraction group, in addition to those with expertise in research and practice. The principal reviewers of the group began the evaluation process by making an extraction template file for each article.

Data interpretation and synthesis

Findings from studies examining both closed and open clinical skills were also synthesised, along with key PMST implementation components & patient outcomes for research with (a)having popular PMS & CS outcomes, (b)significant only PMS & CS outcomes, and (c)non-significant related PMS and also CS outcomes. This was originally the responsibility of the review's lead reviewers, but following consultation with the rest of the research team, they settled on a specific objective.

RESULTS

Twenty papers were found to be relevant to the study, six dealing with open clinical skills and fourteen with closed clinical skills.

PMST severity in HPE

It is clear from Supplement Table 1 that the bulk of the research on both closed and open CS was conducted in the United Kingdom and the United States. Most studies that evaluate surgical skills, especially suturing, include medical students or trainee surgeons. One study was a surgical procedure, while the other two involved the management of a critically ill patient using open CS with young clinicians in training. Only nursing students from three studies—one concentrating on

closed CS & two on open CS—were from those other health professions.

The essential PMST implementation elements in HPE

The majority of studies that used imaging also included the use of relaxation techniques, positive self-talk, and goal-setting. Supplement Table 2 details the essential components of the selected studies' execution. All PMST were delivered either entirely or mostly in group settings. There were around five sessions total, and each one lasted about 57 minutes. Most coaches were either familiar with PMS themselves or seasoned therapists with some expertise in sports psychology. One study found that a sport psychologist had a therapist learn the skills necessary to become a trainer.

The activation of past knowledge via the exchange of previous experiences was shown in five trials, and in two studies, this was coupled with an initial assessment of PMS effectiveness. Additional written guidelines for a specific PMS were included in nine trials, and these were supplemented with instructional videos in seven others. The PMS was applied to a simulated situation in five investigations, and in a real-world context in two. Two studies at most claimed that participants were given some kind of response after using PMS in a simulated environment. The generalizability of PMS was examined in four separate studies, each of which applied the concept to either a clinical setting, a simulated scenario, or a real-world context. Using a self-reflective journal and a custom-written mental imagery script, respectively, two studies adapted PMS to real-world contexts.

RESULTS OF THE PMST IN HPE

- **Study design and results are taken into account**

The studies had an average MERSQI score of 13.8, and the majority of them were randomised controlled trials. This is indicative of a high standard of research methodology overall. However, reporting of the study was usually poor or inaccurate, especially with reference to the PMST's composition. Only three studies looked at long-term effects; two focused on hypothetical outcomes, while the third investigated participants' impressions in practise. Pre- and post-tests for PMS and CS were conducted in all investigations. Participants' positive opinions of PMST's usefulness were collected in nine investigations, but participants' perceptions of PMST's drawbacks were not.

- **Determining the general effects of PMST in HPE**

More relevant to the goal of discovering the outcome of PMST are studies that indicate a logical relationship between factors, like those that included both PMS and CS. When PMS and CS were studied together, seven of the studies indicated positive outcomes. Not much was known about the correlation between PMS and CS, despite the fact that there was a favourable influence on both. The studies could not be compared, and more information on their significance was not provided, because of the wide diversity in the PMS or CS main outcome, analytic techniques, and reporting of effect size.

- **The primary PMST implementation elements and results**

In order to identify the crucial elements of implementation, we analysed the studies that showed considerable positive results for coupled PMS and CS, PMS alone, and CS simply. Due to the low total number of essential implementation components across all categories, statistical analysis could not be performed to identify the statistically relevant parts of implementation. Successive studies did have a few glaring similarities in terms of the most important components of their execution, however. It was essential to use a multimodal approach, one that integrated several PMS and was delivered in a group setting by a trainer familiar with PMS. Important factors were opportunities to practise using the PMS, feedback on performance, and a systematised approach to helping students learn. We used multiple studies to compare and contrast the most important parts of open and closed CS's implementation to see if there were any similarities or differences. (both closed and open) with connected PMS and CS, PMS alone, and CS just results.

REVIEW'S ADVANTAGES AND DISADVANTAGES

The strength of the evaluation is that, to the best of our knowledge, it is the first to comprehensively evaluate the use of sport counsellor PMST in a wide range of HPE settings. This literature review extends prior investigations of PMST in the context of healthcare training. An additional strength is the review's interdisciplinary team, which comprised specialists in sport psychology, researchers in HPE education from other disciplines, and a synthesist of health information and data. The data for the review relied on the studies that were selected and their evaluation, which required individual assessments from the reviewers (such as the category of PMS), therefore this is a potential limitation shared with previous systematic reviews. However, attempts were taken to decrease the range of reviewers' opinions by adopting a systematic procedure that included paired reviews and additional reviewers who addressed any issues until consensus was established.

CONCLUSIONS

In order to help medical students and practitioners perform better under pressure, modern training programmes have begun to include concepts from

sport psychology. These include the use of various pre-performance mental skills (PMS) "in the moment" before to and during a performance. This review found that PMST may be useful on CS, and it emphasised certain factors that may boost its effectiveness. Important information for HPE educators was uncovered in the review: future PMST may be guided by a number of essential implementation elements that are consistent with clinical skills training & evidence-based sport psychology. More research is needed to fill up the blanks on PMT's efficacy and the contributions of its primary implementation parts, especially in open CS and real-world settings, and for the nursing & allied health professions. Researchers are also urged to pay careful attention to selecting valid outcome measures.

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