UNIVERSIDADE FEDERAL DE VIÇOSA

LÍVIA CARVALHO SETTE ABRANTES

RELAÇÃO ENTRE ATIVIDADE FÍSICA E QUALIDADE DE VIDA EM UNIVERSITÁRIOS: REVISÃO SISTEMÁTICA E METANÁLISE

VIÇOSA - MINAS GERAIS
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Dissertação apresentada à Universidade Federal de Viçosa, como parte das exigências do Programa de Pós-Graduação em Ciência da Nutrição, para obtenção do título de *Magister Scientiae*.

Orientadora: Silvia Eloiza Priore
Coorientadores: Vivian Siqueira Santos Gonçalves
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Catarina Maria Nogueira de Oliveira Sediyama
Sylvia do Carmo Castro Franceschini
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BIOGRAFIA

Lívia Carvalho Sette Abrantes, filha de Marco Antônio Sette Abrantes e Elemar da Silva Carvalho Abrantes, nasceu em 09 de janeiro de 1995, em Raul Soares, Minas Gerais.

Em 2013 iniciou a graduação em Nutrição, pela Universidade Federal de Viçosa (UFV) e graduou-se nutricionista em 19 de janeiro de 2018.

Em agosto de 2018 iniciou o mestrado pelo Programa de Pós-graduação em Ciência da Nutrição do Departamento de Nutrição e Saúde da Universidade Federal de Viçosa (DNS/UFV), na área de Saúde e Nutrição de Grupos Populacionais, submetendo-se à defesa da dissertação em fevereiro de 2021.

RESUMO

ABRANTES, Lívia Carvalho Sette, M.Sc., Universidade Federal de Viçosa, fevereiro de 2021. **Relação entre atividade física e qualidade de vida em universitários: revisão sistemática e metanálise**. Orientadora: Silvia Eloiza Priore. Coorientadores: Vivian Siqueira Santos Gonçalves, Sarah Aparecida Vieira Ribeiro, Catarina Maria Nogueira de Oliveira Sediyama, Sylvia do Carmo Castro Franceschini e Paulo Roberto dos Santos Amorim.

Introdução: Ao igressar no ensino superior, os estudantes vivenciam diversas mudanças, dentre elas a redução na prática de atividades físicas. Incentivar essa prática de forma regular pode trazer inúmeros benefícios além de evitar ou diminuir custos aos sistemas de saúde e garantir das necessidades biológicas de movimento. **Objetivo:** Avaliar a relação entre atividade física e qualidade de vida em universitários por meio de uma Revisão Sistemática. **Métodos:** As bases de dados investigadas foram LILACS; MEDLINE, via Pubmed; Embase; Scopus; Web of Science e Google Scholar e ProQuest Dissertation & Theses Global para a consulta da literatura cinzenta. Não houve delimitação de data de publicação ou idioma. Os artigos foram selecionados por duas pesquisadoras de forma independente, que também conduziram a avaliação do risco de viés dos artigos incluídos. Calculou-se a metanálise. **Resultados:** Foram identificados 7504 e desses, 30 foram incluídos. Observou-se correlações positivas entre atividade física e os domínios da qualidade de vida: saúde física (0,16. IC95%: 0,11 0,22; I^2 = 99,96%); saúde mental (0,14; IC 95%: 0,07-0,20; I^2 = 99,97%) relações sociais (0,24, IC 95%: 0,08-0,38; I^2 = 99,99%); ambiente (0,23, IC 95%: 0,14-0,32; I^2 = 99,90%); vitalidade (0,17. IC95%: 0,15-0,20; I^2 = 99,49%); dor (0,02. IC95%: -0,02-0,12; I^2 = 99,96%) e qualidade de vida geral e atividade física (0,21, IC95%: 0,08-0,34; I^2 = 99,99%). E associação de R= 0,60 entre qualidade de vida em geral e atividade física (IC 95%: 0,25 - 0,95; I^2 = 85,61%) **Conclusão:** Os resultados mostraram o benefício da atividade física na qualidade de vida dos estudantes. É importante desenvolver estudos com essa população, a fim de que tenham mais dados que facilitem o desenvolvimento de ações promoção, prevenção e atenção à saúde nesse público.

Palavras-chave: Atividade Física. Universitários. Qualidade de Vida. Estilo de Vida. Universidades.

ABSTRACT

ABRANTES, Lívia Carvalho Sette, M.Sc., Universidade Federal de Viçosa, February 2021. **Relationship between physical activity and quality of life in university students: systematic review and meta-analysis.** Advisor: Silvia Eloiza Priore. Co-advisers: Vivian Siqueira Santos Gonçalves, Sarah Aparecida Vieira Ribeiro, Catarina Maria Nogueira de Oliveira Sediyama, Sylvia do Carmo Castro Franceschini and Paulo Roberto dos Santos Amorim.

Introduction: Upon entering higher education, students experience several changes, including a reduction in the practice of physical activities. Encouraging this practice on a regular basis can bring numerous benefits in addition to avoiding or reducing costs to health systems and guaranteeing biological movement needs. **Objective:** To evaluate the relationship between physical activity and quality of life in university students through a systematic review. **Methods:** The investigated databases were LILACS; MEDLINE, via PubMed; Embase; Scopus; Web of Science and Google Scholar and ProQuest Dissertation & Theses Global for consulting grey literature. There was no delimitation of publication date or language. The articles were independently selected by two researchers, who also conducted an assessment of the risk of bias in the included articles. Meta-analysis was calculated. **Results:** 7504 were identified and of these, 30 were included. Positive correlations were observed between physical activity and the domains of quality of life: physical health (0.16. 95% CI: 0.11 0.22; I^2 = 99.96%); mental health (0.14; 95% CI: 0.07-0.20; I^2 = 99.97%) social relationships (0.24, 95% CI: 0.08-0.38; I^2 = 99.99 %); environment (0.23, 95% CI: 0.14-0.32; I^2 = 99.90%); vitality (0.17. 95% CI: 0.15-0.20; I^2 = 99.49%); pain (0.02. 95% CI: -0.02-0.12; I^2 = 99.96%). And R = 0.60 association between quality of life in general and physical activity (95% CI: 0.25 - 0.95; I^2 = 85.61%). **Conclusion:** The results showed the benefit of physical activity in the quality of life students' lives. It is important to develop studies with this population, in order to have more data that facilitate the development of actions promoting, preventing and providing health care to this public.

Keywords: Physical Activity. College Students. Quality of Life. Lifestyle. Universities.

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1.INTRODUÇÃO

Os ambientes de socialização são influenciadores da saúde e bem-estar. Para a Organização Mundial da Saúde (OMS), universidades, escolas, locais de trabalho e setores de saúde, por exemplo, possuem instrumentos essenciais para ações de promoção de saúde e prevenção de doenças (NEWTON, DOORIS, WILLS, 2016). As instituições de ensino superior têm o poder de influenciar a vida dos seus frequentadores e da comunidade ao seu redor, sendo promotora de saúde e qualidade de vida. As universidades e faculdades que promovem a saúde, estão cumprindo seu papel perante a sociedade, em relação as suas políticas e práticas de saúde dentro da instituição (MELLO, MOYSÉS, MOYSÉS, 2010).

Instituições de Ensino Superior (IES) têm número elevado de estudantes, principalmente as universidades, possibilitando assim que um percentual maior de pessoas seja afetada por suas ações promotoras de saúde. Além disso algumas delas dispõem-se de espaços físicos, instalações e recursos que também possibilitam a criação de políticas e ações influenciadoras da qualidade de vida. A presença de pós-graduandos e profissionais da área da saúde pode ser fator positivo para o desenvolvimento das mesmas, visto que isso pode ajudar na formação desses indivíduos e também podem contribuir para suas respectivas pesquisas, sendo benéfico para quem desenvolve e para quem pratica essas atividades (PLOTNIKOFF *et al*., 2015).

Ingressar no ensino superior traz mudanças, marcadas principalmente pela autonomia necessária designada aos estudantes; a distância de casa e da família; além da própria rotina universitária, onde são exigidas longas horas de estudo para realização de trabalhos e provas. O ensino superior é influenciador de comportamentos relacionados à saúde e que influenciam diretamente a fase adulta. Além do estresse e da ansiedade, a vida dessa população também pode ser modificada em relação a alimentação; redução da prática de atividade física e início ou aumento do consumo de álcool e outas drogas (LANTYER *et al*., 2016).

A inatividade física é um grave problema de saúde pública, e tem relação direta com doenças crônicas. A prática de atividade física diminui o risco de doenças cardiovasculares, hipertensão arterial, depressão, acidentes vasculares encefálicos e até cânceres. Também influencia na melhoria da qualidade de vida, da saúde óssea e

muscular. (KOKIC, ZNIKA BRUMNIC, 2019; SNEDDEN et al, 2018). A prevalência de pessoas fisicamente ativas diminui entre a faixa etária de 18 a 24 anos, onde muitos indivíduos ingressam na vida universitária. A prática de atividade física regular traz benefícios para todas as faixas etárias e seu incentivo é uma importante estratégia de saúde para a prevenção de doenças crônicas não transmissíveis. (PLOTNIKOFF et al., 2015). O incentivo à prática regular de atividades físicas pode evitar ou diminuir custos aos sistemas de saúde. É importante para a qualidade do sono, manutenção do peso e/ou perda do mesmo, garante as necessidades biológicas de movimento, ajuda na prevenção e combate a doenças crônicas, é um tipo de lazer, além desses benefícios, afeta diretamente a qualidade de vida (NOWAK, BOZEK, BLUKACZ, 2019).

Qualidade de Vida (QV) é definida pela OMS como "a percepção do indivíduo de sua inserção na vida, no contexto da cultura e sistemas de valores nos quais ele vive e em relação aos seus objetivos, expectativas, padrões e preocupações". É uma definição ampla, onde são considerados diversos aspectos da vida, dentre eles a parte física, espiritual, mental, psicológica, relações sociais, moradia, trânsito, acesso à educação e saúde, sono, presença de dor (QIU et al., 2019). Ela pode ser afetada de diversas maneiras, dentre elas pela inatividade física, estresse, ansiedade, baixa qualidade do sono e outros fatores que estão presentes na vida de um estudante de ensino superior. Diante disso, é importante que essas instituições criem estratégias que incentivem a manutenção da saúde física e mental durante o ensino superior e que venham a refletir na qualidade de vida durante e após a graduação (BARAYAN et al., 2018).

Uma boa estratégia para auxiliar no desenvolvimento de políticas públicas, programas e ações é a Revisão Sistemática (RS). Trata-se de uma metodologia de baixo custo, que sintetiza de forma sistematizada, as pesquisas, dados e artigos que sejam relevantes para determinado assunto ou público. É uma ferramenta que visa a indentificação, seleção e avaliação de evidências sobre o tema de interesse. Pode ser do tipo qualitativa, ou quali e quantitativa. A parte quantitativa da RS é chamada de metanálise. São métodos estatísticos que permitem aumentar a precisão dos desfechos avaliados. Além disso, a metanálise permite avaliar resultados de vários lugares do mundo (BRASIL, 2012)

Até o presente momento, após buscas na literatura, não foram encontrados estudos de revisão sistemática com metanálise que avaliassem a relação entre atividade física e qualidade de vida entre estudantes universitários.

2.REVISÃO DE LITERATURA

2.1 ATIVIDADE FÍSICA

Atividade física (AF) é qualquer movimento intencional do corpo onde há gasto de energia, ela está relacionada com o meio que indivíduo está inserido, podendo ser atividades de lazer, domésticas ou até mesmo o caminho de casa ao trabalho. Por ser uma situação presente no cotidiano, a AF pode ser indicada por qualquer profissional da saúde. Já o exercício físico é definido por uma AF de forma planejada, sistematizada que tem um objetivo específico. Sejam eles o emagrecimento, melhora da flexibilidade, do equilíbrio e da musculatura. Ele deve ser prescrito e orientado por um educador físico, que é o profissional apto para orientar nesses casos (ORGANIZAÇÃO MUNDIAL DA SAÚDE, 2014).

A AF tem papel importante na melhoria da saúde física e mental. Pessoas mais ativas fisicamente, têm menores chances de desenvolver problemas psicológicos como ansiedade, por exemplo. A OMS preconiza que adultos entre 18 e 64 anos, realizem de 150 min a 300 min de AF moderada ou de 75 min a 150 min de AF vigorosa ao longo da semana (CLEMENTE et al., 2016; WANG et al.,2020; WHO, 2020). Mesmo trazendo inúmeros benefícios, ao adentrar a vida universitária, os jovens modificam seus comportamentos, tornando-se cada vez mais sedentários. Além da rotina exaustiva das universidades, muitas delas não dão suporte adequado que possibilite a prática de AF em suas dependências (OLIVEIRA,2016; TAO et al., 2019).

A prática de AF é importante para a vida, principalmente na atualidade, onde as situações cotidianas exigem cada vez menos esforços, devido aos diversos avanços tecnológicos, a aquisição de automóveis e a outros confortos que demandam cada vez menos energia para serem realizados (OLIVEIRA, 2016). Portanto, a prática de exercícios físicos deve ser uma ação diária, com o objetivo de ter uma vida mais ativa e saudável, além de ser fator protetor para doenças crônicas não transmissíveis, como obesidade, hipertensão, hipercolesterolemia, diabetes *mellitus*, entre outras patologias (OLIVEIRA, 2016).

Praticar AF traz benefícios para a capacidade funcional do indivíduo, contribuindo para melhor desenvolvimento de atividades do dia-a-dia. Além disso, tem ação benéfica em relação à dores em ossos e articulações, melhora da força e da flexibilidade. Influenciando também em casos de depressão, sendo uma importante estratégia não

medicamentosa para essa doença, pois promove sensação de bem-estar e auxilia na melhoria da autoestima (FRANCHI, 2012).

São necessárias políticas públicas e intervenções eficazes para que a inatividade física seja reduzida. E para isso, é importante conhecer a realidade da população em estudo, buscando quais a razões para a redução dessa prática. Só assim, é possível propor ações que sejam efetivas para mudança desse quadro, que como mostrado em diversos estudos, é a realidade da maioria dos universitários, ao redor do Brasil e do mundo (SOUZA et al., 2015).

2.2 QUALIDADE DE VIDA

O termo qualidade de vida (QV), é compreendido por diversos elementos, entre eles estão a atividade física; alimentação; consumo de álcool, tabaco e outras drogas; qualidade do sono; moradia, relações sociais e outros. A sua mensuração, tem se mostrado determinante para a promoção de ações e políticas de saúde. Também inclui a relação do indivíduo com o meio em que vive, os seus objetivos e expectativas para a vida (DE CASTRO et al., 2017).

A QV é um conceito amplo, onde são abordados não somente a presença e/ou ausência de saúde ou doença. Ela abrange domínios físicos, psicológicos, comportamentais, relações sociais, espirituais e com o ambiente. Busca também compreender as necessidades fundamentais do ser humano, preocupando-se em promover a saúde (MINAYO, et al., 2000; VIANA e SAMPAIO, 2019). É um conceito próprio, subjetivo, particular, multimensional; que pode ser afetado por diversos fatores, como os próprios valores do indivíduo, seus costumes, a maneira de enxergar a vida e as situações ao seu redor. Sendo assim é uma definição que tende a se modificar ao longo da vida (SEIDL; ZANNON, 2004; ANVERSA et al., 2018; MOREIRA et al., 2019).

Em um estudo de 2020, avaliou-se estudantes universitários sobre a relação entre QV e alfabetização em saúde, que é definida como a capacidade do indivíduo de compreender, entender e utilizar as informações relacionadas à saúde. E ao analisar essa relação, encontrou-se efeito positivo da alfabetiação em saúde na qualidade de vida de estudantes universitários da Jordânia (RABABAH, AL-HAMMOURI, DREW, 2020). Em outro estudo, também de 2020, ao avaliar estudantes universitários de Hong Kong, Macau e China encontrou-se que naqueles estudantes com sintomas depressivos, escores nos domínios físico, psicológico, social e ambiental da qualidade de vida

significativamente mais baixos, quando comparados àqueles do grupo “sem depressão” (LI et al., 2020).

A vida acadêmica deve ser estudada e entendida considerando a importância da QV nesse período, pois os universitários vivem uma série de fatores estressantes ao ingressarem no ensino superior: maiores responsabilidades, administração do seu próprio dinheiro, os deveres da própria faculdade (provas, trabalhos, horários de estudo), o desafio de morar longe dos pais, além da pressão por fazer parte de algum grupo ou por se identificar com pessoas com os mesmos pensamentos e atitudes. Estes fatores podem afetar diretamente a qualidade de vida desse numeroso e expressivo grupo (GE et al., 2019; MOREIRA et al., 2019).

Os comportamentos benéficos à saúde, também afetam diretamente a QV na população universitária. Entretanto, muitas vezes não é de conhecimento dos estudantes a importância do cultivo de bons hábitos de saúde nessa fase, e o quanto eles impactam nos anos posteriores. Além do pouco conhecimento, a própria rotina do ensino superior já colabora para o desenvolver esses hábitos. O estilo de vida pouco saudável está relacionado à diminuição da QV e do bem-estar psicológico (SEO et al., 2018). A piora no bem-estar psicológico pode afetar o rendimento dentro da universidade e a QV, levando ao aumento no consumo de substâncias como álcool, tabaco e outras drogas. Além disso, a QV também está relacionada ao sono dos estudantes de ensino superior. Aqueles que dormem menos, ou têm um sono insatisfatório, apresentam QV diminuída, afetando diretamente a saúde física, piora nas emoções sentidas, menor rendimento acadêmico, no lazer e nas atividades do dia a dia, dentro e fora da universidade (JANUARY et al., 2018; TAYLOR et al., 2012; WONG et al., 2012).

2.3 UNIVERSITÁRIOS

De acordo com a Organização das Nações Unidas para Educação, Ciência e Cultura (UNESCO), no Relatório de Monitoramento Global da Educação de 2018 (*The Global Education Monitoring Report* – GEM Report), o número de estudantes de ensino superior entre os anos de 2000 e 2014 passou de 100 milhões para 207 milhões (UNESCO, 2018). Segundo o Instituto Brasileiro de Geografia e Estatística (IBGE), houve um aumento importante no número de estudantes inseridos no ensino superior, com idades entre 18 e 24 anos, na última década (IBGE, 2016). Aproximadamente 60%

dos indivíduos com essa idade cursou o ensino superior no ano de 2014 (NOGUEIRA et al., 2018).

No período universitário, os estudantes são apresentados a um novo ambiente, somado a novos desafios e descobertas. Essa mudança exige maior autonomia desses indivíduos, maior independência dos pais ou responsáveis e maiores responsabilidades, antes desconhecidas (ALMUTAIRI et al., 2018; NOGUEIRA et al., 2018). Com isso, eles também passam a fazer parte de um ambiente novo, onde buscam novas companhias e serem aceitos em grupos com interesses em comum . Todos esses fatores podem levar a comportamentos como inatividade física, estresse e má alimentação, menores horas de sono, piora da saúde mental, consumo de drogas. Trazendo como possíveis consequências o desenvolvimento de doenças crônicas como diabetes, hipertensão e obesidade (ALMUTAIRI et al., 2018; NOGUEIRA et al., 2018). O ganho de peso nesse momento também é um fator preocupante, e acomete muitos estudantes. Isso pode ocorrer devido a comportamentos já citados anteriormente, como alimentação pouco saudável, aumento do consumo de alimentos industrializados e prontos para consumo, tempo escasso; inatividade física; poucas horas de sono; podendo levar à mudanças também no perfil metabólico dessa população (NOGUEIRA et al., 2018).

Visto que comportamentos que se iniciam nas fases mais jovens tendem a perpetuar na fase adulta; é necessário estar atento a essas mudanças nos universitários. A promoção da saúde dentro das universidades é importante, contando com o incentivo a prática de atividades físicas, atenção à saúde mental e alimentação (NOGUEIRA et al., 2018; NOWAK, BOZEK, BLUKACZ, 2019). Durante a permanência no ensino superior, a presença de transtornos mentais nessa população é crescente. Jovens que estão inseridos na faculdade/ universidade podem ter uma pior saúde mental quando comparados àqueles de mesma idade, que não estão nesse meio, bem como a população adulta de modo geral (STALLMAN, 2010; SHARP, THEILER, 2018). A piora na saúde mental de estudantes universitários pode estar ligada à preocupações com afazeres acadêmicos (gestão do tempo, demanda elevada de provas e trabalhos); fatores financeiros (administração do dinheiro ou muitas vezes a escassez do mesmo), distância da casa dos pais e dos familiares, compromissos sociais e a necessidade de aceitação dentro desse meio (STALLMAN, 2010; SHARP, THEILER, 2018).

O percurso e a finalização de um curso de ensino superior devem ser tratados como etapas fundamentais na vida de um indivíduo, portanto merece atenção e cuidado.

Deve-se olhar atentamente para essa população e as consequências trazidas por esse período, para que o percurso não afete o rendimento acadêmico e nem a vida profissional (ANVERSA et al., 2018).

2.4 REVISÕES SISTEMÁTICAS E METANÁLISE

A Revisão sistemática (RS) é um método de seleção e sintetização de evidências relevantes, que visam responder uma pergunta de pesquisa sobre determinado assunto. Ela identifica, seleciona e avalia os dados, por meio de uma série de "regras" que de forma sistematizada, visam minimizar os erros e apresentar resultados mais confiáveis. São úteis para trazer informações de forma ampla sobre o assunto em questão, podendo englobar estudo de várias localidades, sendo um instrumento útil e confiável de gestão em saúde e de apoio às decisões clínicas (BERWANGER et al., 2007; SAMPAIO & MANCINI, 2007; BRASIL, 2012; IMPELLIZZERI, BIZZINI, 2012). Para a condução de uma RS há necessidade de seguir uma série de passos e regras metodológicas para identificação de estudos relevantes para a pesquisa. Entre eles estão os critérios de elegibilidade preestabelecidos; seleção das bases de dados e a estratégia de busca definida de modo que abranja o maior número de estudos possíveis dentro do tema. Uma revisão sistemática bem delineada pode servir de base para vários pesquisadores e ainda apoiar decisões relacionadas à prática clínica e a elaboração e avaliação de políticas de saúde (BERWANGER et al., 2007; BRASIL, 2012; IMPELLIZZERI, BIZZINI, 2012).

A RS pode ser desenvolvida apenas de forma qualitativa, onde as características principais são tabuladas e depois discutidas; ou de forma qualitativa e quantitativa, onde são feitos testes estatísticos com os resultados apresentados, realizando assim, uma metanálise (DE-LA-TORRE-UGARTE-GUANILO, TAKAHASHI, BERTOLOZZI, 2011; IMPELLIZZERI, BIZZINI, 2012).

A metanálise é uma técnica estatística que visa combinar dados de vários estudos independentes, aumentando a precisão e a acurácia dos resultados. É um método quantitativo que tem por intuito retirar informações dos dados já existentes nos artigos originais selecionados, por meio da aplicação de uma ou mais análises estatísticas. Proporciona agrupar os resultados dos artigos originais, já existentes; avaliar a heterogeneidade; e resumir suas conclusões ou mesmo trazer uma nova conclusão. Possibilita também ao pesquisador, descobrir novos resultados, que não seriam nítidos

nos artigos de maneira individual (LUIZ, 2002; BRASIL, 2012; BREI, VIEIRA, MATOS, 2014; FRESE, ROUSSEAU, & WIKLUND, 2014; PEREIRA et al., 2019). O teste de heterogeneidade tem relevância para as RS, pois estudos de mesmo delineamento, sejam eles transversais ou ensaios clínicos, podem diferir metodologicamente ou não entre si. Além das metodologias distintas, os podem ser diferentes de acordo com a população alvo, as variáveis analisadas, as regiões estudadas, período de intervenção, dentre outras. Esse teste mostrará quão diferentes estão os resultados entre si, além daquilo que já é esperado (BAENA, 2014).

3.OBJETIVOS

3.1 OBJETIVO GERAL

Revisar a literatura de forma sistemática sobre a relação entre prática de atividade física e qualidade de vida em universitários.

3.2 OBJETIVOS ESPECÍFICOS

- Avaliar a relação entre os níveis de atividades físicas praticadas e as pontuações dos domínios específicos componentes da qualidade de vida (QV) em estudantes universitários (dentre esses domínios estão: relações sociais, dor, ambiente, saude mental, saúde fisica, entre outros, podendo variar de acordo com o instrumento de avaliação utilizado);
- Investigar o risco de viés entre os estudos existentes que investigaram a relação entre prática de atividade física e QV;
- Sumarizar quantitativamente a relação entre a prática de atividade física e QV.

4. MATERIAL E MÉTODOS

4.1 TIPO DE ESTUDO

Trata-se de um estudo de revisão sistemática, com metanálise referente à relação dos níveis de atividades físicas e a qualidade de vida em estudantes universitários ao redor do mundo.

4.2 CRITÉRIOS DE INCLUSÃO E EXCLUSÃO

Foram incluídos:

- Estudos com universitários de ambos os sexos;
- Estudos com estudantes de qualquer instituição de ensino, sejam elas públicas ou privadas;
- Estudos que investigaram a correlação ou associação entre níveis de atividade física e qualidade de vida de modo geral ou entre os domínios da mesma;
- Estudos publicados em quaisquer datas, idiomas ou locais.

Foram excluídos:

- Estudos de revisão, cartas aos editores, estudos com análises qualitativas, estudos de caso e/ou capítulos de livros;
- Artigos com estudantes universitários com condições específicas ou doenças, tais como: obesidade, diabetes, filhos de pessoas com doenças crônicas, entre outros.
- Artigos que se tratavam de instituições destinadas apenas a populações muito específicas.

4.3 ESTRATÉGIA DE BUSCA

A busca foi iniciada e finalizada em agosto de 2020, sem delimitação de data ou idioma. Os artigos duplicados foram excluídos. Esta Revisão Sistemática foi rgistrada no International Prospective Registry of Systematic Reviews (PROSPERO): número CRD42020197289.

Para a busca dos artigos foram utilizadas as bases: LILACS, MEDLINE, via Pubmed, Embase, Scopus, Web of Science e Google Scholar e ProQuest Dissertation & Theses Global foram utilizados para a consulta da literatura cinzenta.

Os descritores (*Mesh/Decs*) utilizados foram: “College Student” OR “University student” OR Student OR Undergraduate OR “Bachelor’s degree” OR University OR Universities OR Faculty OR Academy AND “Physical activity level”

OR “Physical activity” OR “Sedentary behavior” OR “Sedentary lifestyle” AND “Quality of life” OR Lifestyle OR “Life quality” OR “Health-related quality of Life” OR “Health related quality of life” OR HRQOL AND Observational OR “Observational study” OR Survey OR “Cross-sectional” OR Cohort OR “Case-control” OR Intervention OR “Intervention Study” OR “Clinical Trial” OR “Clinical Study” OR “Randomized Controlled Trial” OR RCT OR Association OR Relationship.

As estratégias utilizadas estão apresentadas abaixo, tendo sido adaptadasde acordo com as peculiaridades de cada base:

Medline (PubMed)*:* ("College Student"[Title/Abstract] OR "University student"[Title/Abstract] OR Student[Title/Abstract] OR Undergraduate[Title/Abstract] OR "Bachelor’s degree"[Title/Abstract] OR University[Title/Abstract] OR Universities[Title/Abstract] OR Faculty[Title/Abstract] OR Academy[Title/Abstract]) AND (“Physical activity level”[Title/Abstract] OR “Physical activity”[Title/Abstract] OR “Sedentary behavior”[Title/Abstract] OR “Sedentary lifestyle”[Title/Abstract]) AND (“Quality of life”[Title/Abstract] OR Lifestyle[Title/Abstract] OR “Life quality”[Title/Abstract] OR “Health-related quality of Life”[Title/Abstract] OR “Health related quality of life”[Title/Abstract] OR HRQOL[Title/Abstract]) AND (Observational OR "Observational Study" OR Survey OR "Cross-sectional" OR Cohort OR "Case-control” OR Intervention OR "Intervention study" OR "Clinical Trial" OR "Clinical study" OR "Randomized controlled trial" OR RCT OR Association OR Relationship OR Correlation).

Lilacs: tw:((“college student” OR “university student” OR student OR undergraduate OR “bachelor’s degree” OR university OR universities OR faculty OR academy) AND (“physical activity level” OR “physical activity” OR “sedentary behavior” OR “sedentary lifestyle”) AND (“quality of life” OR lifestyle OR “life quality” OR “health-related quality of life” OR “health related quality of life” OR hrqol) AND (observational OR “observational study” OR survey OR “cross-sectional” OR cohort OR “case-control” OR intervention OR "Intervention study" OR "Clinical trial" OR "Clinical study" OR "Randomized controlled trial" OR rct OR association OR relationship OR correlation OR risk)) AND (db:("LILACS")).

***Embase**:* ('college student':ab,ti OR 'university student':ab,ti OR student:ab,ti OR undergraduate:ab,ti OR 'bachelors degree':ab,ti OR university:ab,ti OR universities:ab,ti OR faculty:ab,ti OR academy:ab,ti) AND ('physical activity level':ab,ti OR 'physical activity':ab,ti OR 'sedentary behavior':ab,ti OR 'sedentary lifestyle':ab,ti) AND ('quality of life':ab,ti OR lifestyle:ab,ti OR 'life quality':ab,ti OR 'health-related quality of life':ab,ti OR 'health related quality of life':ab,ti OR hrqol:ab,ti) AND (observational OR 'observational study' OR survey OR 'cross-sectional' OR cohort OR 'case-control' OR intervention OR 'intervention study' OR 'clinical trial' OR 'clinical study' OR 'randomized controlled trial' OR rct OR association OR relationship OR correlation).

Scopus: TITLE-ABS-KEY ("College Student" OR "University student" OR student OR undergraduate OR "Bachelor's degree" OR university OR universities OR faculty OR academy) AND TITLE-ABS-KEY ("Physical activity level" OR "Physical activity" OR "Sedentary behavior" OR "Sedentary lifestyle") AND TITLE-ABS-KEY ("Quality of life" OR lifestyle OR "Life quality" OR "Health-related quality of Life" OR "Health related quality of life" OR hrqol) AND TITLE-ABS-KEY (observational OR "Observational study" OR survey OR "Cross-sectional" OR cohort OR "Case-control" OR intervention OR "Intervention Study" OR "Clinical Trial" OR "Clinical Study") AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "MEDI") OR LIMIT-TO (SUBJAREA , "NURS") OR LIMIT-TO (SUBJAREA , "PSYC")) AND (LIMIT-TO (EXACTKEYWORD , "Physical Activity")) AND (LIMIT-TO (EXACTKEYWORD , "Adult")).

Web of Science: AB=(“College Student” OR “University student” OR Student OR Undergraduate OR “Bachelor’s degree” OR University OR Universities OR Faculty OR Academy) AND AB=(“Physical activity level” OR “Physical activity” OR “Sedentary behavior” OR “Sedentary lifestyle”) AND AB=(“Quality of life” OR Lifestyle OR “Life quality” OR “Health-related quality of Life” OR “Health related quality of life” OR HRQOL) AND TS=(Observational OR “Observational study” OR Survey OR “Cross-sectional” OR Cohort OR “Case-control” OR Intervention OR “Intervention Study” OR “Clinical Trial” OR “Clinical Study” OR “Randomized Controlled Trial” OR RCT OR Association OR Relationship OR Correlation).

Google Scholar: With all of the words: "Physical Activity" AND "Quality of life" AND "University". With at least one of the words: “College Student” OR “University student” OR Student OR Undergraduate OR “Bachelor’s degree” OR University OR Universities OR Faculty OR Academy OR “Physical activity level” OR “Physical activity” OR “Sedentary behavior” OR “Sedentary lifestyle” OR “Quality of life” OR Lifestyle OR “Life quality” OR “Health-related quality of Life” OR “Health related quality of life” OR HRQOL OR Observational OR “Observational study” OR Survey OR “Cross-sectional” OR Cohort OR “Case-control” OR Intervention OR “Intervention Study” OR “Clinical Trial” OR “Clinical Study” OR “Randomized Controlled Trial” OR RCT OR Association OR Relationship OR Correlation. Where my words occurs: anywhere in the article 200 most relevant hits.

ProQuest Dissertation & Theses Global: ab("College Student" OR "University student" OR Student OR Undergraduate OR "Bachelor’s degree" OR University OR Universities OR Faculty OR Academy) AND ti("Physical activity level" OR "Physical activity" OR "Sedentary behavior" OR "Sedentary lifestyle") AND ti("Quality of life" OR Lifestyle OR "Life quality" OR "Health-related quality of Life" OR "Health related quality of life" OR HRQOL) AND (Observational OR "Observational study" OR Survey OR "Cross-sectional" OR Cohort OR "Case-control" OR Intervention OR "Intervention study" OR "Clinical trial" OR "Clinical study" OR "Randomized controlled trial" OR RCT OR Association OR Relationship OR Correlation OR Risk) AND at.exact ("Dissertation/Thesis" OR "Article").

4.4. SELEÇÃO DOS ARTIGOS

Os estudos foram selecionados por duas pesquisadoras (LCSA e NSM) de forma independente. Na primeira etapa, foram selecionados por títulos e resumos e posteriormente, pela leitura completa. Caso houvesse necessidade, uma terceira pesquisadora (VSSG) era consultada em busca de consenso.

4.5 EXTRAÇÃO DOS DADOS

Após a leitura completa e seleção dos artigos, foram extraídas as informações: autor e ano; país do estudo; amostra (número amostral, sexo e idade); desenho do estudo e objetivo do mesmo; os instrumentos utilizados para a avaliação da atividade física e da

qualidade de vida, e suas respectivas pontuações finais ou por domínios; e ainda os desfechos dos artigos incluídos: o teste estatístico utilizado, as variáveis de ajuste e os principais resultados. Coletou-se ainda informações sobre a seguinte pergunta: “A prática de atividade física apresentou relação com a qualidade de vida?.”

Para a condução da metanálise, também foram extraídos os resultados quantitativos da associação entre as exposições e desfechos de interesse, junto à sua estimativa de erro (Erro Padrão, Desvio Padrão, Intervalo de Confiança ou Variância).

4.6 AVALIAÇÃO DO RISCO DE VIÉS

O instrumento utilizado para a avaliação do risco de viés dos artigos foi o recomendado pelo The Joanna Briggs Institute para estudos transversais, de forma adaptada (JOANNA BRIGGS INSTITUTE, 2017). O instrumento é composto por 8 questões respondidas por "sim", "não", "pouco claro" ou "não aplicável". Para este estudo, caso todos os itens tivessem a resposta "sim", o risco de viés foi considerado baixo e se algum item for classificado como "não", foi esperado alto risco de viés.

Duas pesquisadoras (LCSA e NSM) avaliaram a qualidade de cada estudo de forma independente. Uma terceira revisora (VSSG) resolveu as diferenças entre as duas principais. Os resultados foram apresentados pela frequência da classificação dos domínios de avaliação. Essa avaliação não foi utilizada como um critério de elegibilidade para o estudo.

4.7 ANÁLISE ESTATÍSTICA

Os softwares utilizados foram o Microsoft Excel 2013 para digitação do banco de dados e posteriormente utilizou-se o comando “meta” do software STATA versão 16.0 (número de série 301606311865) para a condução dos testes estatísticos.

Para as metanálises foram utilizados modelos randômicos (*Random models*), com estimação do efeito pelo método da Máxima Verossimilhança (*Maximum-likelihood*). A abordagem de metanálise de efeitos aleatórios, supõem que diferentes estudos estimam diferentes efeitos de intervenção, embora relacionados (DERSIMONIAN AND LAIRD, 1986; DEEKS et.al. 2019) o que está de acordo com nossos dados.

No caso dos estudos onde a medida de efeito era a correlação, não foram apresentadas pelos autores as estimativas de erro (Erro Padrão, Desvio Padrão, Intervalo

de Confiança ou Variância) necessárias para sua realização. Assim, procedeu-se à obtenção do coeficiente de correlação (r) transformado para o valor z (HEDGES e OLKIN, 1985), onde:

z = 0,5 * ln ((1+r) / (1-r)), onde ln=; r=

O valor z foi utilizado por apresentar distribuição aproximada normal e a sua variância pode ser estimada pela fórmula:

Variância = 1/ (n-3) , onde n= número de participantes de cada artigo.

Após a sumarização dos resultados e cálculo dos respectivos Intervalos de Confiança (IC95%) as medidas foram novamente transformadas em coeficiente de correlação para melhor interpretação dos resultados e apresentadas por meio de Gráficos de Floresta. Para os estudos que investigaram a associação entre as exposições e desfechos de interesse por meio da análise de regressão, a medida sumária foi apresentada por meio do coeficiente β, acompanhado pelos respectivos IC95%.

A heterogeneidade dos efeitos do tratamento entre os estudos foi testada utilizando o método Qui-quadrado ($p < 0,10$) (HIGGINS et al., 2020) e sua magnitude usando I^2. Devido ao número de estudos incluídos na metanálise, não foi possível realizar metarregressão e análise de viés de publicação, de acordo com a recomendação da Colaboração Cochrane (DEEKS et al., 2019).

5. RESULTADOS

Article - Physical activity and quality of life in university students: systematic review and meta-analysis.

Artigo – Atividade física e qualidade de vida em universitários: revisão sistemática e metanálise.

RESUMO

Objetivo: Revisar a literatura de forma sistemática sobre a relação entre prática de atividade física (AF) e qualidade de vida (QV) em universitários. **Métodos:** As bases de dados investigadas foram LILACS, MEDLINE, Embase, Scopus, Web of Science. Google Scholar e ProQuest Dissertation & Theses Global foram utilizados para a consulta

da literatura cinzenta. Não houve delimitação de data de publicação ou idioma. Os artigos foram selecionados por duas pesquisadoras de forma independente, assim como a avaliação do risco de viés. Calculou-se a meta-análise. **Resultados:** Foram identificados 7504 artigos , e destes, 30 fizeram parte da revisão. Para a metanálise, 22 estudos foram incluídos. Encontraram-se correlações positivas entre AF e os domínios da QV: saúde física (0,16. IC95%: 0,11 0,22; I^2 = 99,96%); saúde mental (0,14; IC 95%: 0,07-0,20; I^2 = 99,97%) relações sociais (0,24, IC 95%: 0,08-0,38; I^2 = 99,99%); ambiente (0,23, IC 95%: 0,14-0,32; I^2 = 99,90%); vitalidade (0,17. IC95%: 0,15-0,20; I^2 = 99,49%) dor (0,02. IC95%: -0,02-0,12; I^2 = 99,96%); QV geral e AF (0,21, IC95%: 0,08-0,34; I^2 = 99,99%). Encontrou-se associação de R= 0,60 (IC 95%: 0,25 - 0,95; I^2 = 85,61%) entre QV geral e AF. **Conclusão:** A prática de AF tem relação com melhor qualidade de vida em universitários, apesar da heterogeneidade metodológica. É importante estudar essa população, visto que comportamentos de risco nessa fase tendem a perpetuar na fase adulta.

Palavras – Chave: atividade física, universitários, ensino superior, qualidade de vida, revisão sistemática, metanálise.

ABSTRACT

Objective: To systematically review the literature on the relationship between physical activity (PA) and quality of life (QOL) in university students. **Methods:** The databases investigated were LILACS, MEDLINE, Embase, Scopus and Web of Science. Google Scholar and ProQuest Dissertation & Theses Global were used to investigate the grey literature. There was no delimitation of publication date or language. The articles were selected by two researchers independently, as well as the risk of bias assessment. Meta-analysis was calculated. **Results:** 7504 articles were identified, and from these, 30 were included. For the meta-analysis, 22 studies were included. Positive correlations were found between PA and the QOL domains: physical health (0.16. 95% CI: 0.11 0.22; I^2 = 99.96%); mental health (0.14; 95% CI: 0.07-0.20; I^2 = 99.97%) social relationships (0.24, 95% CI: 0.08-0.38; I^2 = 99.99 %); environment (0.23, 95% CI: 0.14-0.32; I^2 = 99.90%); vitality (0.17. 95% CI: 0.15-0.20; I^2 = 99.49%) pain (0.02. 95% CI: -0.02-0.12; I^2 = 99.96%); General QOL and PA (0.21, 95% CI: 0.08-0.34; I^2 = 99.99%). An association of R = 0.60 (95% CI: 0.25 - 0.95; I^2 = 85.61%) was found between general QOL and PA. **Conclusion:** The practice of PA is related to better quality of life in university students, despite the methodological heterogeneity. It is important to study this population, since risky behaviors in this phase tend to perpetuate in adulthood.

Keywords: physical activity, university students, higher education, quality of life, systematic review, meta - analysis.

INTRODUCTION

The practice of physical activity is related to improving health, being an important factor in reducing the risk of chronic non-communicable diseases. It is related to a better biochemical profile, in addition to contributing to well-being and positively influencing mood and anxiety (SILVA et al., 2010; CALESTINE et al., 2017; CDC, 2017; LEGEY et al., 2017). Both the prevalence of chronic diseases and physical inactivity are public health problems. It is estimated that in 2017, 31.1% of the adult world population was below the recommendations (150 min of Physical Activity (moderate PA) / week or 75 min of Vigorous PA / week) of the American College of Sports Medicine (CALESTINE et al ., 2017; GARCÍA HERMOSO et al., 2017; TAO et al., 2019). Stimulating PA should be one of the priorities of world public policies, especially in developing countries. Its practice is beneficial at any age, but it is important to pay attention to some population groups, such as university students. This phase is marked by major changes in the lives of these individuals, including an increase in sedentary lifestyle, due to the busy routine experienced by them, the workload required by institutions, tests, jobs and responsibilities such as managing their own food, finances, among others. In addition, the behaviors consolidated in this period can remain in the other phases of life (LANTYER et al., 2016; ESTEVES et al., 2017).

A longitudinal study was carried out from 1997 to 2014 with a representative sample of adults in the USA. It found that those individuals who practiced at least 150 minutes of moderate-intensity aerobic physical activity, 75 minutes of vigorous-intensity aerobic physical activity each week, or the combination of the two, plus muscle strengthening activities moderately twice a week or more, presented a lower risk of mortality from all causes when compared to those who did not exercise regularly (ZHAO *et al*., 2020).

Quality of life can be assessed by domains: physical; mental; environment; social relationships; access to food, health and education; pain; housing; commuting; in addition to financial issues. The assessment may vary according to the type of instrument used for this purpose (SOLIS, LOTUFO-NETO, 2019). It can be affected by several factors, such as the individual's routine and the phases they experience. Therefore, higher education and all the changes resulting from it may have an influence on the quality of life of the

university student (SEIDL; ZANNON, 2004; ANVERSA et al., 2018; MOREIRA et al., 2019).

In view of the above, due to the changes experienced by higher education students, including physical inactivity and the presence of several factors that can influence quality of life, it becomes interesting to better understand physical activity as a factor influencing quality of life in university students from all over the world (OLIVEIRA, 2016; SEO et al., 2018; GE et al., 2019).

After searching the literature, no studies were found that provided a general overview of the relationship between physical activity and quality of life in university students worldwide. Therefore, the objective was to systematically review the literature on the relationship between physical activity (PA) and quality of life (QOL) in university students from all over the world.

METHODOLOGY

Protocol and registration

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) checklist (LIBERATI, et al., 2009). This review was registered in the International Prospective Registry of Systematic Reviews (PROSPERO): number CRD42020197289.

Eligibility Criteria

Studies with university students of both sexes were included; of any educational institution, whether public or private. Studies that investigated the correlation or association between levels of physical activity and quality of life in general or between domains of it, published on any dates, languages or locations.

Review studies, letters to editors, studies with qualitative analys es, case studies and / or book chapters. Articles with university students with specific conditions or diseases, such as: obesity, diabetes, children of people with chronic diseases, among others, and those that were institutions aimed only at very specific populations, were excluded.

Information sources and Search strategy

The search strategy was developed based on the list of recommendations from the Peer Review of Electronic Search Strategies (PRESS) (MCGOWAN et al., 2016) and later sent for review to two researchers with experience in Systematic Reviews. To search for the studies, the following databases were used: MEDLINE, LILACS, Embase, Scopus, Web of Science, Google Scholar and ProQuest Dissertation & Theses Global.

The search strategy used for MEDLINE was: ("College Student"[Title/Abstract] OR "University student"[Title/Abstract] OR Student[Title/Abstract] OR Undergraduate[Title/Abstract] OR "Bachelor's degree"[Title/Abstract] OR University[Title/Abstract] OR Universities[Title/Abstract] OR Faculty[Title/Abstract] OR Academy[Title/Abstract]) AND ("Physical activity level"[Title/Abstract] OR "Physical activity"[Title/Abstract] OR "Sedentary behavior"[Title/Abstract] OR "Sedentary lifestyle"[Title/Abstract]) AND ("Quality of life"[Title/Abstract] OR Lifestyle[Title/Abstract] OR "Life quality"[Title/Abstract] OR "Health-related quality of Life"[Title/Abstract] OR "Health related quality of life"[Title/Abstract] OR HRQOL[Title/Abstract]) AND (Observational OR "Observational Study" OR Survey OR "Cross-sectional" OR Cohort OR "Case-control" OR Intervention OR "Intervention study" OR "Clinical Trial" OR "Clinical study" OR "Randomized controlled trial" OR RCT OR Association OR Relationship OR Correlation). For the other six databases, the search strategy was adapted according to their peculiarities (Apendix 1).

The searches started and ended in August 2020. In addition, the references of the included articles were inspected in order to identify qualified articles for review.

Selection of studies and Data extraction

Following the eligibility criteria, researchers selected the studies independently. First, the title and abstract were evaluated, and the second step consisted of reading the articles in full. Disagreements were resolved by consensus.

Subsequently, the characteristics of the studies were organized into three tables containing information such as: Author and year; study country; sample (n sample, sex and age); study design, study objective; instruments for assessing physical activity and quality of life and their respective final or domain scores; statistical test used, adjustment

variables, main results and finally the following question: "Is physical activity related to quality of life?".

When there was an absence of information in the articles, the authors were contacted at least twice in order to obtain this data.

Risk of bias within individual studies

The critical tool recommended by the Joanna Briggs Institute for adapted cross-sectional studies was used to assess the risk of bias (INSTITUTO JOANNA BRIGGS, 2017).

The tool consists of eight questions: "Inclusion criteria clearly defined in the sample"; “Subjects of study and environment described in detail”; “Exposure measured in a valid and reliable way”; "Clearly defined objectives and inclusion and exclusion criteria"; "Confounding factors identified"; "Strategies for dealing with confounding factors"; "Results measured in a valid and reliable way"; "Adequate statistical analysis" (JOANNA BRIGGS INSTITUTE, 2017).

The questions were answered as "yes", "no", "unclear" or "not applicable". If all answers are “yes”, in all items, the risk of bias will be low and if any item is classified as "no", a high risk of bias will be expected (JOANNA BRIGGS INSTITUTE, 2017). The result of this assessment was not a reason for excluding any study.

Summary Measures and Data analysis

When quantitative data were available, meta-analyses were performed to: (1) verify the correlation between the scores of the instruments for assessing QOL (and its components) and the practice of PA; and (2) estimate the magnitude of the association between the scores of the instruments for assessing QOL and the practice of PA.

Random models were used for meta-analysis, with effect estimation using the Maximum Likelihood method (Maximum-likelihood). The meta-analysis random effects assumes that different studies estimate different intervention effects, although related (DERSIMONIAN AND LAIRD, 1986; DEEKS ET AL 2019), which agrees with our data.

In the case of studies where the measure of effect was the correlation, the authors did not present the error estimates (Standard Error, Standard Deviation, Confidence Interval or Variance) necessary for their performance. Thus, we proceeded to obtain the correlation coefficient (r) transformed to the z-value (HEDGES AND OLKIN, 1985), where:

$Z = 0.5 * \ln((1 + r) / (1-r))$.

(ln: natural log; r: correlation coefficient)

The z value was used because it presents a normal approximate distribution and its variance can be estimated by the formula (ref):

Variance = 1 / (n-3) (n= number of participants for each article).

After summarizing the results and calculating the respective Confidence Intervals (95% CI), the measurements were again transformed into a correlation coefficient for better interpretation of the results and presented using Forest Graphics.

For studies that investigated the association between exposures and outcomes of interest through regression analysis, the summary measure was presented using the β coefficient, accompanied by the respective 95% CI.

The heterogeneity of treatment effects between studies was tested using the Chi-square method ($p < 0.10$) (HIGGINS et al., 2020) and its magnitude using I^2. Due to the reduced number of studies included in the meta-analysis, it was not possible to perform meta-regression and analysis of publication bias, according to the recommendation of protocols by Cochrane (DEEKS et al., 2019).

All tests were performed using the Stata Software, version 16, serial number 301606311865, using the “meta” command.

RESULTS

Selection of studies

Figure 1 shows the steps for selecting articles and those included in the review. Appendix 1 shows the excluded articles and the reason for the exclusion of each one.

Study characteristics

There was no response from the contacted authors to obtain missing data. Table 1 shows the general characteristics of the studies. After the analysis, 30 articles were included, all with cross-sectional design. With individuals of both sexes and published in the years 2011 to 2020.

The studies were developed in several countries around the world: Brazil (LEGEY et al., 2017; MACIEL et al., 2013 ; PELEIAS et al., 2017); the United States (DUNN, 2011; GOLDSBY, 2018; JOSEPH et al., 2013; NIEVES, 2017; SNEDDEN et al., 2019; ZHANG et al., 2016; ZHANG et al., 2018); Turkey (ÇIÇEK, 2018; KILINÇ et al., 2016; KOCAAGA et al., 2018; YILDIRIM, BAYRAK, 2019); Korea (PARK, KIM, 2013; JOO, 2018); China (GE et al., 2019; MAK et al., 2017); Croatia (KOKIC, ZNIKA, BRUMNIC, 2019; PEDIŠIĆ et al., 2014); Taiwan (CHANG et al., 2016); Pakistan (KHAN, HASSANDRA, 2016); South Africa (KRUGER and SONONO, 2016); Colombia (LEMOS, OROZCO-VARGAS, CRUZ, 2014); Italy (MASSIDA, CUGUSI, MATHIEU, 2015); Venezuela (MENDOZA AND BASTARDO, 2013); Poland (NOWAK, BO'ZEK, BLUKACZ, 2019); Serbia (PEKMEZOVIC et al., 2011); Iran (POURRANJBAR, ZEYTOONLI, 2019) and Vietnam (VO, NGUYEN, TA, 2020).

The total sample was 19731 individuals. The general objective of each study and other characteristics are shown in table 1.

Risk of bias within individual studies

Of the 8 parameters evaluated in the 30 selected studies, four obtained only "yes" answers: Exposure measured in a valid and reliable way; Objective and standard criteria for measurement; Results measured in a valid and reliable way; Appropriate statistical analysis (Appendix 3)

Among the studies, seven (GE at el., 2019; JOSEPH et al., 2014; KOKIC; ZNIKA; BRUNMNIC, 2019; NIEVES, 2017; SNEDDEN et al., 2019; YILDIRIM; BAYRAK, 2019; ZHANG et al., 2017) met all parameters evaluated (Fig. 2).

Results of individual studies

Tables 2 and 3 show the results of the relationship between physical activity and quality of life in university students, showing the various instruments used to evaluate the

variables of interest, types of statistical tests used; the adjustment variables and the main outcomes found.

Among the selected studies, the most used instruments to assess the quality of life of the university population were the Quality of Life Questionnaire - short version (WHOQOL-BREF), used by nine studies (ÇIÇEK, 2018; PARK, KIM, 2013; JOO , 2018; KILINÇ et al., 2016; MACIEL et al., 2016; MAK et al., 2017; PELEIAS et al., 2017; VO, NGUYEN, TA, 2020; YILDIRIM, BAYRAK, 2019) and the Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36), also used by nine articles (CHANG et al., 2018; KHAN, HASSANDRA, 2016; KOCAAGA et al., 2018; KOKIC, ZNIKA, BRUMNIC, 2019; LEGEY et al., 2017; MASSIDA, CUGUSI, MATHIEU, 2015; MENDOZA E BASTARDO, 2013; NIEVES, 2017; PEKMEZOVIC et al., 2011).

The International Physical Activity Questionnaire (IPAQ) was the most used instrument to assess physical activity among university students. It was used by 14 of the 30 studies evaluated (ÇIÇEK, 2018; GE et al., 2019; GOLDSBY, 2018; JOO, 2018; KHAN, HASSANDRA, 2016; KILINÇ et al., 2016; KOCAAGA et al., 2018; KOKIC , ZNIKA, BRUMNIC, 2019; LEMOS, OROZCO-VARGAS, CRUZ, 2014; MACIEL et al., 2017; MASSIDA, CUGUSI, MATHIEU, 2015; NOWAK, BO'ZEK, BLUKACZ, 2019; PEDIŠIĆ et al., 2014; POURRANJBAR , ZEYTOONLI, 2019; ZHANG et al., 2016). The other instruments used to assess quality of life (QOL) and physical activity (PA) and the score obtained in each one are presented in more detail in Table 2.

Table 3 shows the type of statistical test used (association or correlation), in addition to the adjustment variables. As well as the main results, and the answers to the question "IS PA PRACTICE RELATED TO THE BEST QOL?".

In all studies, the practice of physical activity by university students was related to the improvement of their quality of life, in at least one assessed domain. Chang and collaborators (2016) found in their results that a higher frequency of physical exercises correlated with higher Mental Component Summary (MCS) scores.

Ge and collaborators (2019) and Snedden and collaborators (2019), also found positive results between physical activity and Physical Component Summary (PCS) and Mental Component Summary (MCS). Their results found that a higher score for PCS and MCS indicated a better Health Related Quality of Life (HRQOL) and a positive

relationship between increased sport and PA level and greater MCS, respectively. The other results are presented in more detail in Table 2.

Summary measures and meta-analysis

The analyzed data were divided into subgroups, according to the common outcomes of the selected articles. They were separated into seven subgroups according to quality of life: Physical Health; Mental health; Social relationships; Environment; Vitality; Pain; General (AF vs QV).

A meta-analysis was performed for each item of quality of life mentioned above. Due to the lack of data in the articles, 22 were included. Weak but significant correlations were found.

The correlation between physical activity and the physical health domain was 0.16 (95% CI: 0.11 0.22; I^2 = 99.96%) (FIGURE 3); between physical activity and mental health was 0.14 (95% CI: 0.07-0.20; I^2 = 99.97%) (FIGURE 4); physical activity and social relations: 0.24 (95% CI: 0.08-0.38; I^2 = 99.99%) (FIGURE 5); physical activity and the environmental domain: 0.23 (95% CI: 0.14-0.32; I^2 = 99.90%) (FIGURE 6); physical activity and vitality: 0.17 (95% CI: 0.15-0.20; I^2 = 99.49%) (FIGURE 7) physical activity and pain: 0.02 (95% CI: -0.02- 0.12; I^2 = 99.96%) (FIGURE 8) and correlation between physical activity and overall quality of life: 0.21 (95% CI: 0.08-0.34; I^2 = 99.99%) (FIGURE 9).

An association of R = 0.60 (95% CI: 0.25 - 0.95; I^2 = 85.61%) was found between physical activity and general quality of life (FIGURE 10).

DISCUSSION

This systematic review was able to show the influence of physical activity on the quality of life of university students. The results highlight the importance of encouraging the practice of physical activity in these individuals, through policies that make this practice feasible, since many institutions have adequate physical space and professionals who can facilitate these activities (SOUZA et al., 2015; MELLO, MOYSÉS , MOYSÉS, 2010; PLOTNIKOFF et al., 2015).

In this study, meta-analyses showed weak but significant correlations and associations between physical activity and general quality of life and their domains in

university students. This can be justified by the fact that quality of life is a broad concept and can be influenced not only by physical activity, but also by countless other factors, such as diseases; sleep, stress; quality of food, social relationships, financial problems and other behaviors and situations that are part of the individual's daily life. Another point was the use of IPAQ in most of the included studies as an instrument for assessing physical activity. The fact that the instrument is often completed by the volunteers themselves can cause some change in the final results. (MINAYO, et al., 2000; BARAYAN et al., 2018; VIANA and SAMPAIO, 2019).

The benefits of physical activity are already well known: it helps with fighting chronic diseases; improves sleep quality; decreases stress and anxiety; favors social relations; assists in motor balance, improves physical and mental health, among many others (LANTYER et al., 2016; ROMÁN-MATA et al., 2020). Many of the benefits resulting from physical activity are precisely the factors taken into account when assessing quality of life. This is illustrated in the present study, where positive and significant correlations were found between physical activity and the domains: physical health; social relations, mental health, environment and vitality.

In a study carried out with Spanish university students (ROMÁN-MATA et al., 2020), it was shown that individuals who did not meet the WHO recommendations for physical activity presented worse levels of psychological suffering. In an article regarding university students in Hong Kong, a positive correlation was found between resilience, physical activity and mental health (CHOW, CHOI, 2019). In addition to corroborating our results, where meta-analyses also found positive relationships between mental health and physical activity, the two studies cited brought up points that are very important in assessing quality of life.

In this review, a high methodological heterogeneity was observed in the articles during the meta-analysis, which can make it difficult to standardize the evaluation measures or to define a "gold standard" for this. However, this is recurrent, since the articles that comprised the study were all cross-sectional. Because the study includes articles developed in several countries around the world, the methods were different from each other, as each population has its own characteristics and peculiarities. A systematic review study is of great importance because it encompasses a diverse and considerable sample of participants in multiple regions of the world, bringing a certain representation

to the studied population; it is an accessible method in relation to research costs; in addition, it is an interesting tool to be studied when developing or evaluating public policies and actions.

Study limitations

One of the limitations of this study was the heterogeneity of the methodologies used in the articles, which were all transversal, making it difficult to carry out other complementary statistical analyses. In addition, many times they were not taken by the authors as being marked as an error (Standard Error, Standard Deviation, Confidence Interval or Variance), and it was also required to perform meta-analyses.

In addition, as these are only cross-sectional studies, it is not possible to state that physical activity improves quality of life, and further studies are needed, especially of the longitudinal type that allow this monitoring.

Strengths of the study

This systematic review was carried out using the most current recommended methods for this type of study. It followed PRISMA, and was registered with PROSPERO. In addition, the PRESS checklist was also used. The selection of the studies took place independently and several databases were used in order to achieve a large number of studies. Grey literature was also consulted. When necessary, the authors were contacted in order to obtain answers regarding the articles. There were no studies similar to this one, of systematic review and meta-analysis found in the literature.

CONCLUSION

The practice of physical activity is related to a better general quality of life in the domains of physical health, social relationships, mental health, environment and vitality in university students. These results point to the need to further study this population, as they undergo intense changes and behaviors which tend to perpetuate themselves in other phases of life, and in order to bring more data for the development of policies, actions and programs which benefit the aforementioned population.

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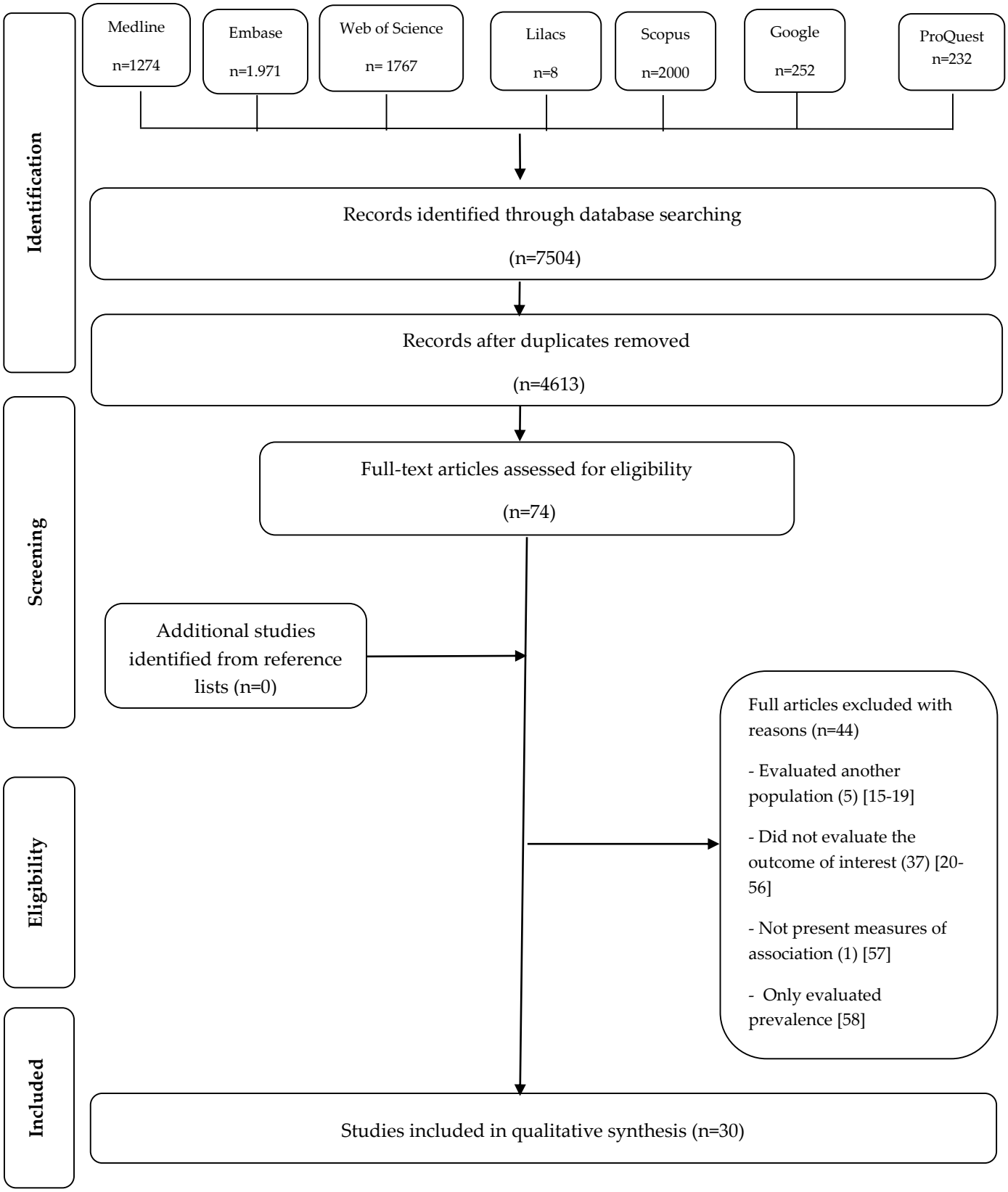

Fig. 1 Flow diagram of the literature search and selection criteria (Adapted from PRISMA).

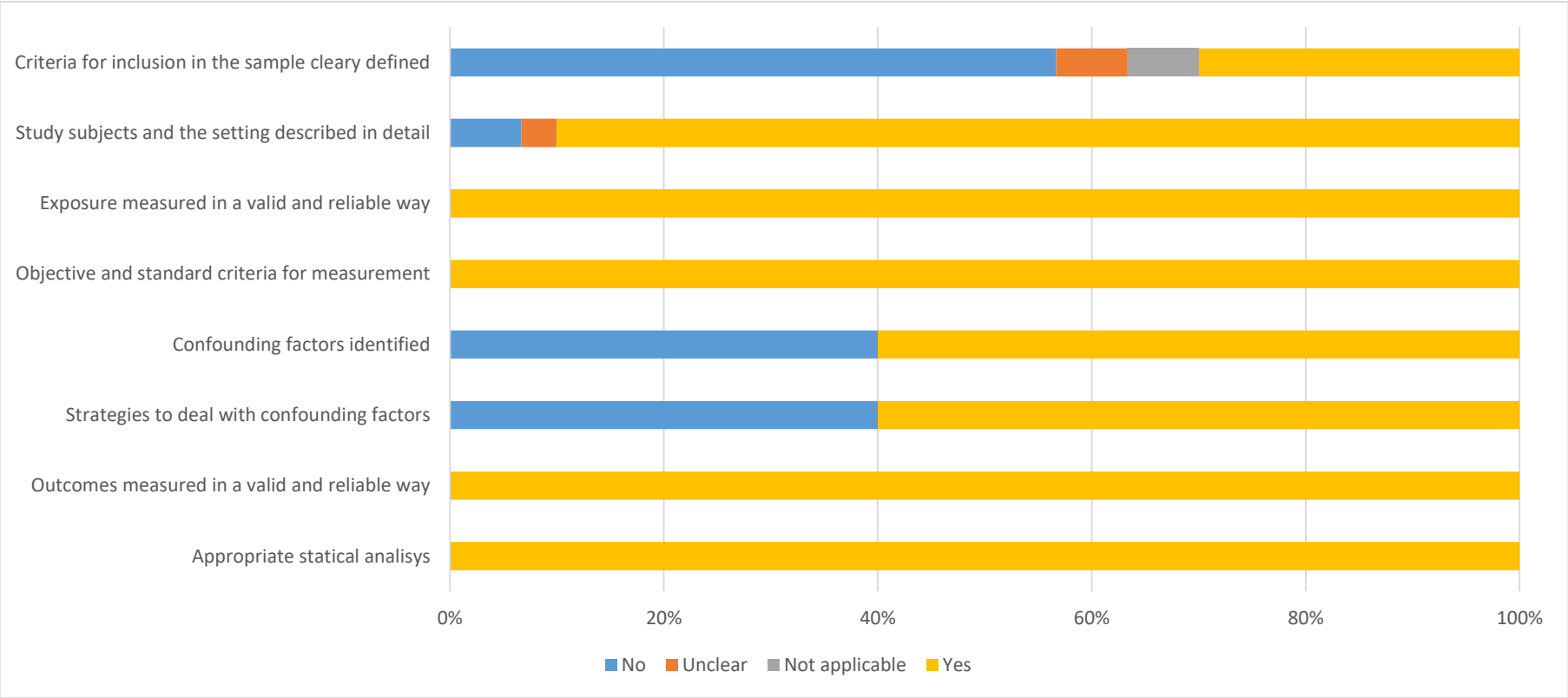

Fig. 2 Risk of bias in the included studies (The Joanna Briggs Institute Critical Appraisal Checklist for Case Series).

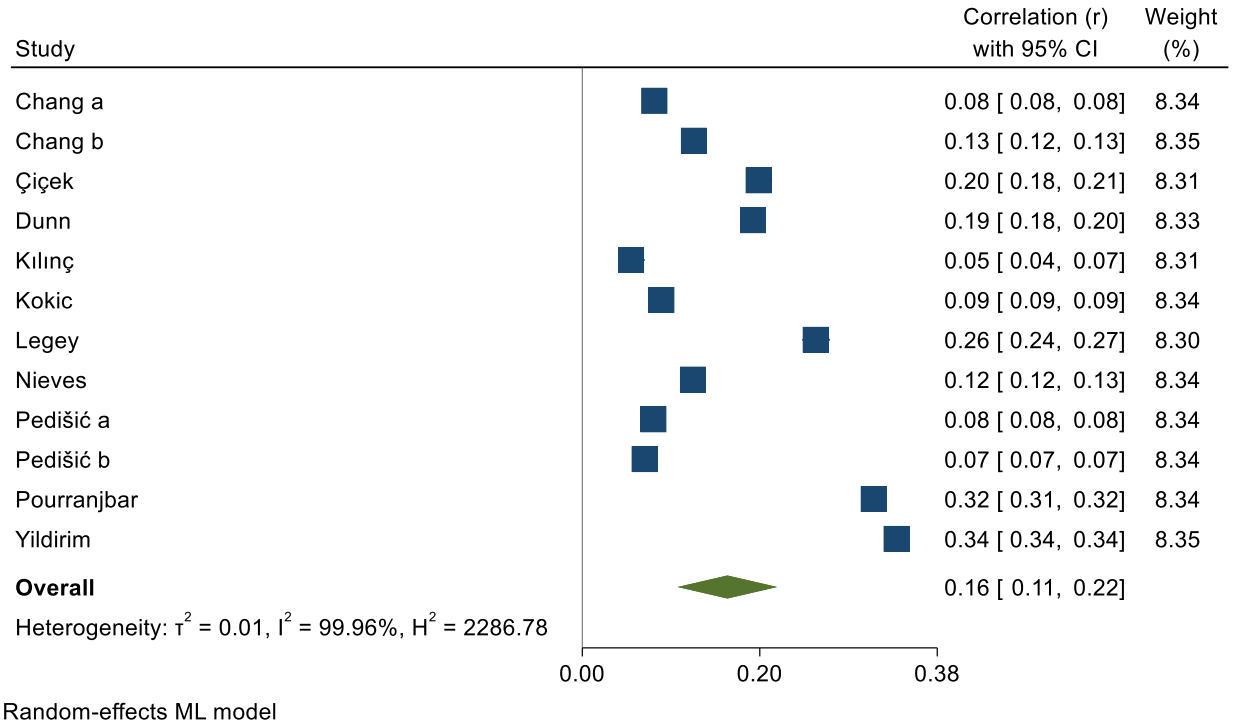

Fig. 3 Correlation between physical activity and physical domain.

Chang a: Exercise Frequency X PCS in male; **Chang b**: Exercise Frequency X PCS in female; **Çiçek**: Total Activity X Physical Health; **Dunn**: PA X Physical health-related quality of life; **Kilinç**: OFA X Physical area; **Kokic**: "My level of PA is adequate" X PCS; **Legey**: Physical Activity Level X Physical Capacity; **Nieves**: PAL X Physical Functioning; **Pedisic a**:Total PA X Physical functioning in female; **Pedisic b**: Total PA X Physical functioning in male; **Pourranjbar**: High PA Level X Physical Health; **Yildirim:** Sports-based physical activity and socialization X QOL (Physical Health).

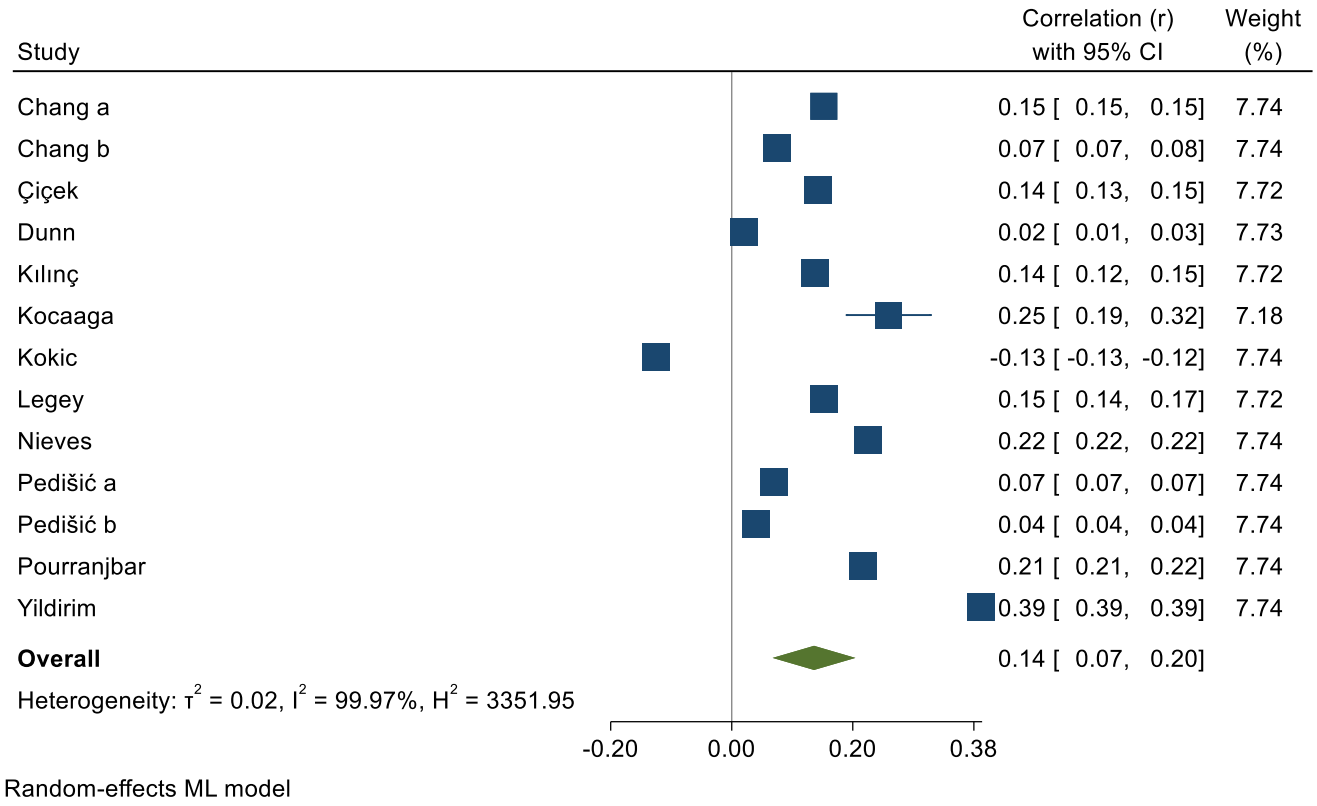

Fig. 4 Correlation between physical activity and mental domain.

Chang a: Exercise Frequency X MCS in male; **Chang b**: Exercise Frequency X Mental Health in female; **Çiçek**: Severe Activity X Psychological Health; **Dunn**: PA X Psychosocial health-related quality of life ; **Kilinç**: EFA X Psychological Area; **Kocaaga**: IPAQ moderate X SF36 Emotional Status; **Kokic:** Total PA X Mental health; **Legey**: PAL X Emotional Aspect; **Nieves**: Physical Activity Rating Scal (PA-R) X Role limits due to emotional problems; **Pedisic a**: Total PA X Mental Health in female; **Pedisic b**: Total PA X Mental Health in male; **Pourranjbar:** Moderate PA Level X Psycological Health **Yildirim:** Sports-based physical activity and socialization X QoL (Mental Health).

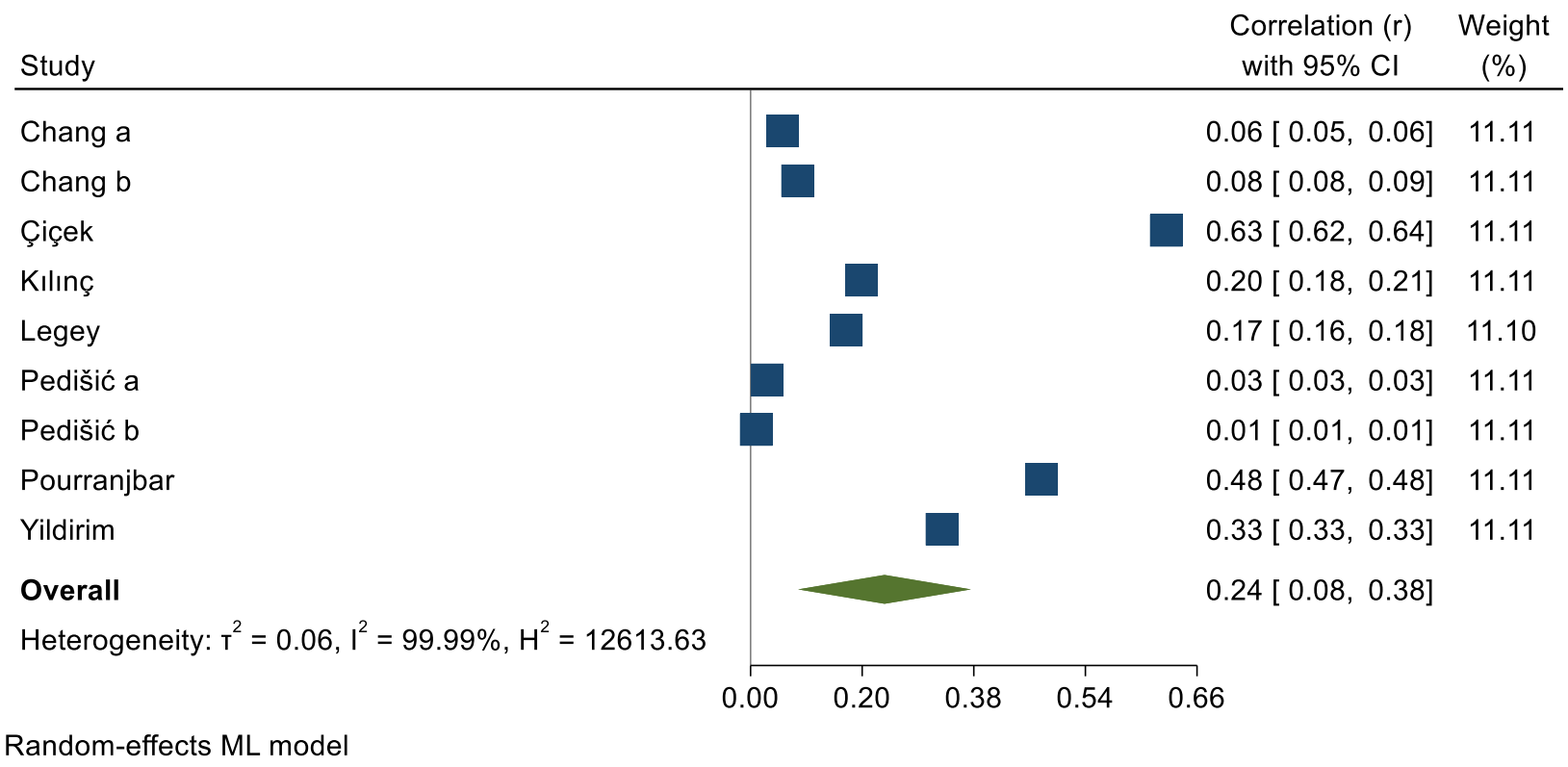

Fig. 5 Correlation between physical activity and social relationships domain .

Chang a: Exercise Frequency X Social functioning (SF) in male; **Chang b**: Exercise Frequency X Social functioning (SF) in female; **Çiçek**: Total Activity X Social Relationships; **Kilinç**: EFA X Social Domain; **Legey**:: PAL X Social Aspect; **Pedisic a:** Total PA X Social functioning in female; **Pedisic b**: **:** Total PA X Social functioning in male; **Pourranjbar:** High PA Level X Social Relationships; **Yildirim:** Sports-based physical activity and socialization X QOL (Social Relationships).

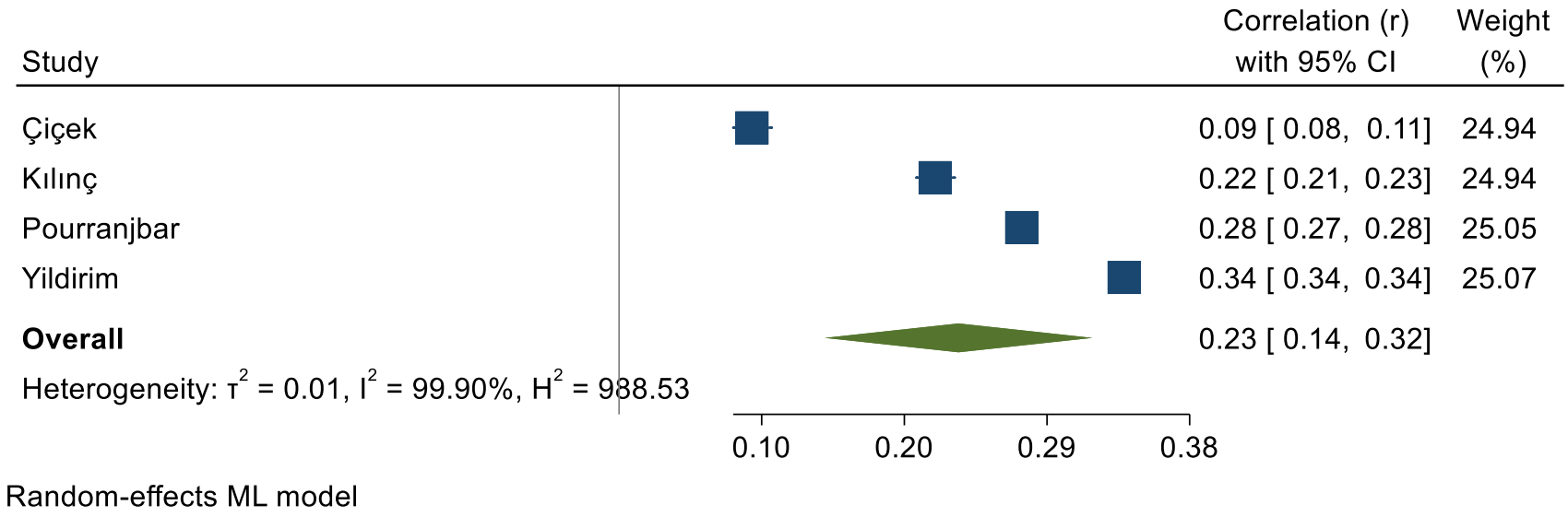

Fig 6 Correlation between the environment domain and physical activity.

Çiçek: Total Activity X Environment; **Kilinç**: EFA X Environmental area; **Pourranjbar:** High PA Level X Environment; **Yildirim:** Sports-based physical activity and socialization X Environmental Health.

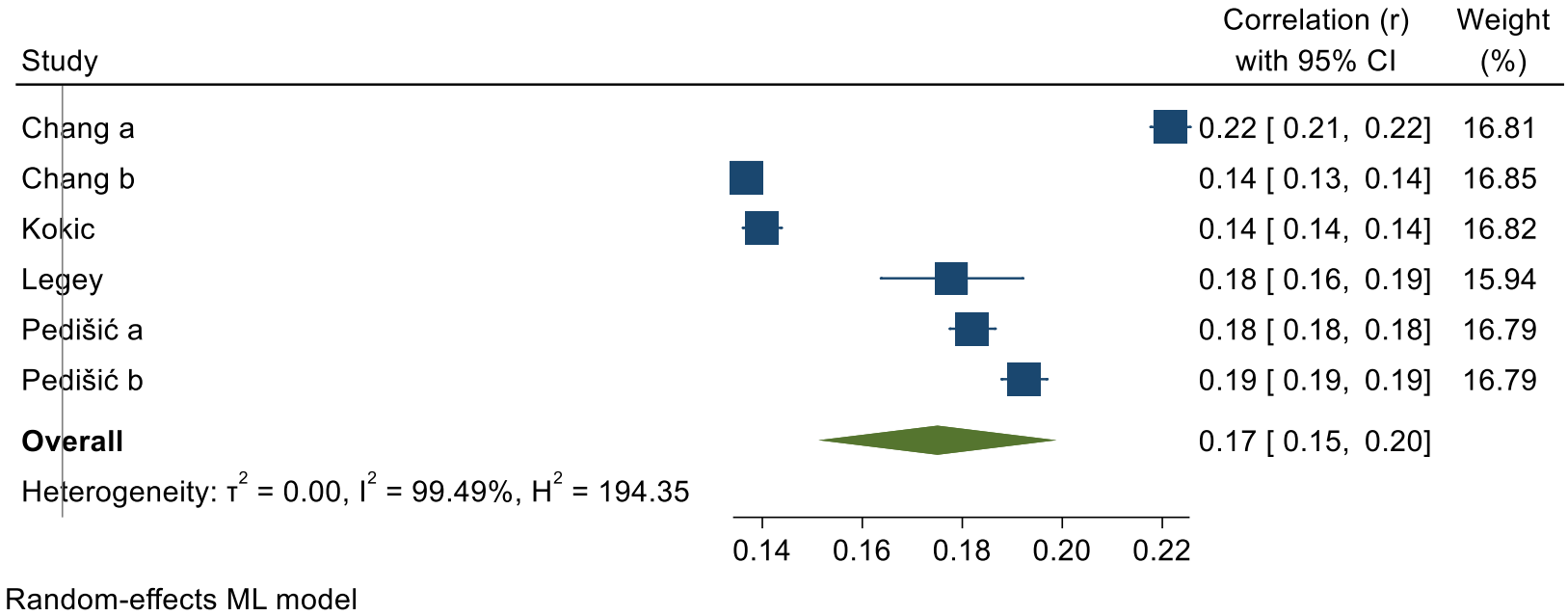

Fig 7. Correlation between the vitality domain and physical activity.

Chang a: Exercise Frequency X Vitality (VT) in male; **Chang b**: Exercise Frequency X Vitality (VT) in female; **Kokic**: Total PA X Vitality; **Legey**: Pal X Vitality; **Pedisic a**: PA total X Vitality in female; **Pedisic b**: PA total X Vitality in male.

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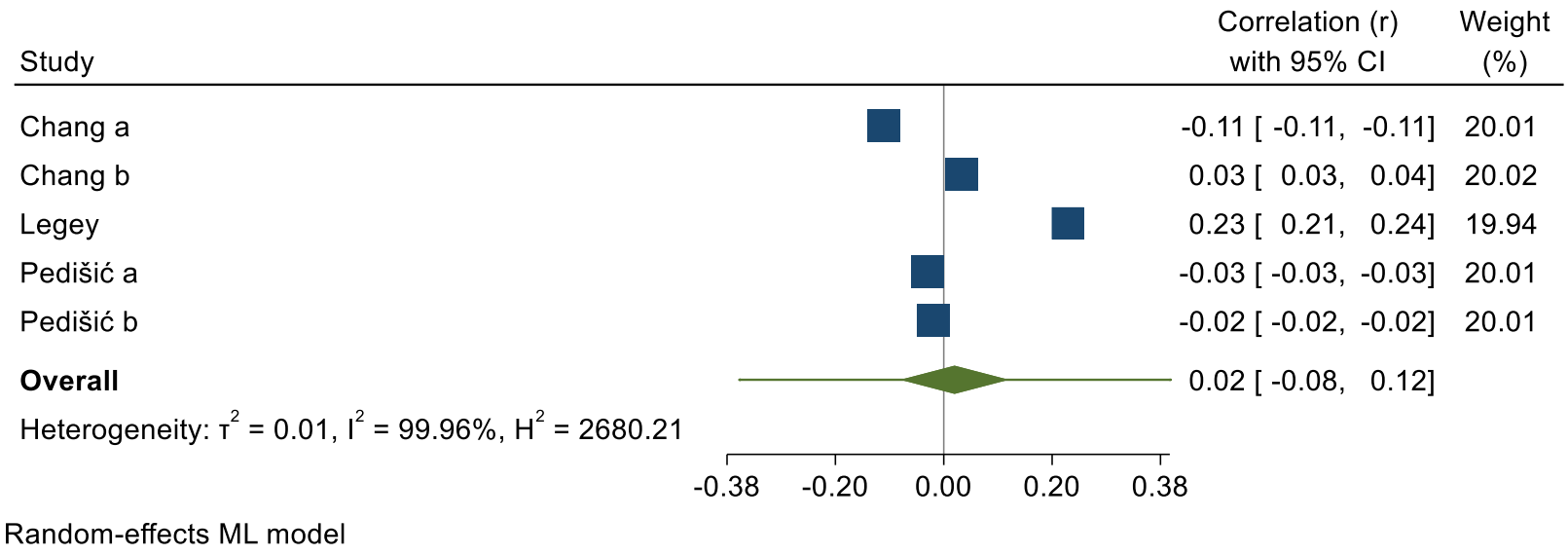

Fig 8. Correlation between physical activity and pain domain.

Chang a: Exercise Frequency X Bodily pain (BP) in male; **Chang b**: Exercise Frequency X Bodily pain (BP) in female; **Legey**: PAL X Pain; **Pedisic a**: Total PA X Bodily pain in female; **Pedisic b**: Total PA X Bodily pain in male.

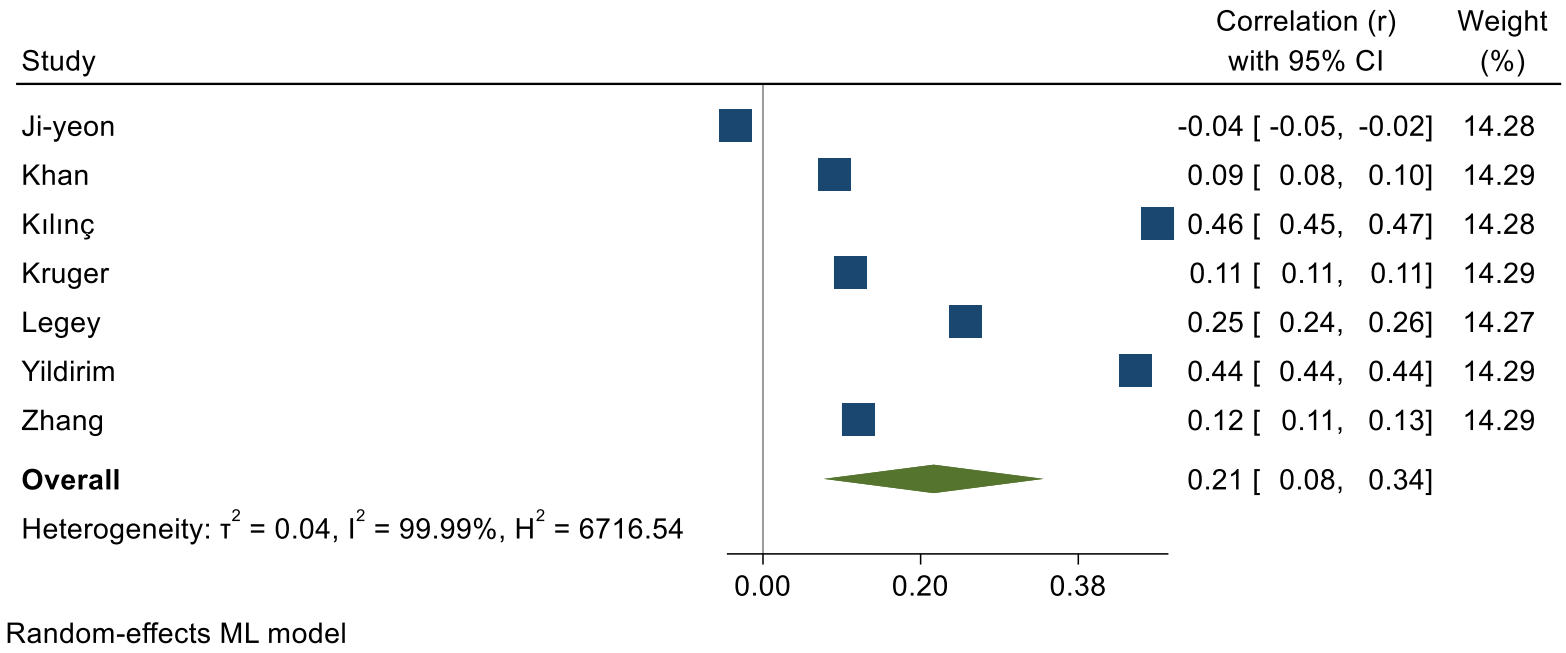

Fig 9. Correlation between physical activity and general quality of life.

Ji- Yeon (Park): Total physical activity X Quality of Life (QoL); **Khan:** Overall Physical Activity X QoL; **Kilinç:** Physical Activity X QoL; **Kruger:** PA X QoL **;** **Legey:** Physical Activity Level (PAL)X HRQoL Total**; Yildirim:** Physical activity based on sports and socializing X QoL; **Zhang:** PA X Mastery-approach goal orientation.

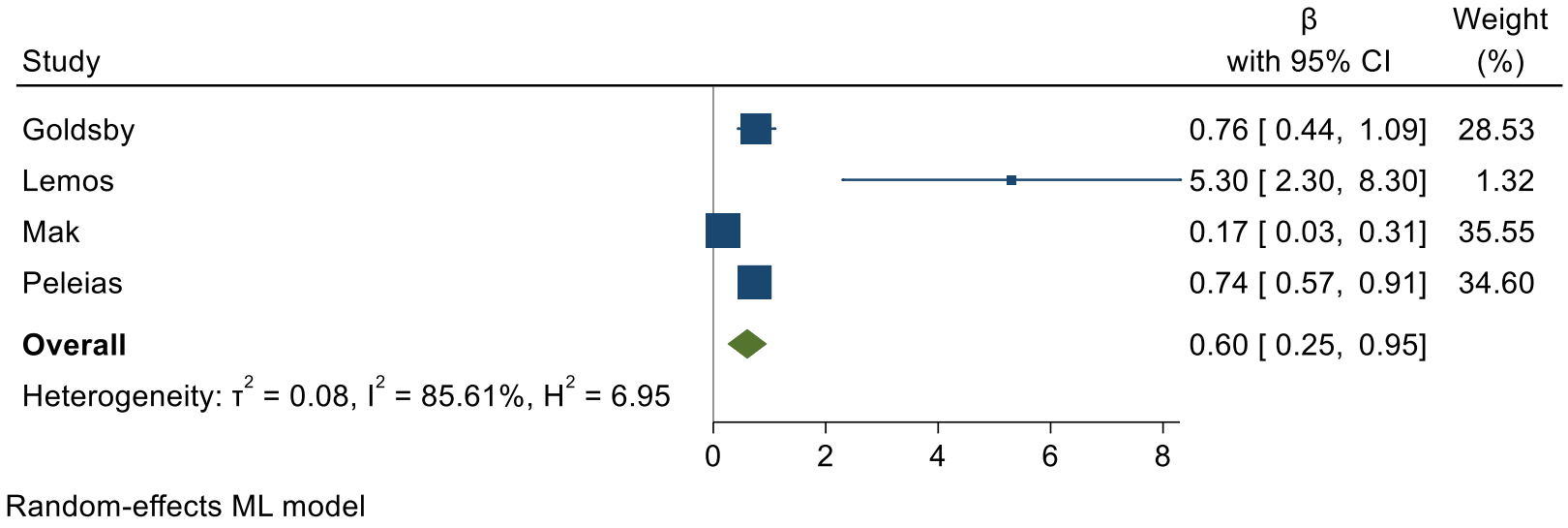

Fig 10 Association between physical activity and general quality of life.

Goldsby: Moderate-vigorous physical activity (MVPA) X Health Related Quality of Life; **Lemos:** Vigorous physical activity X QoL; **Mak:** PA (HPL) X QoL; **Peleias:** High PA X QoL self-assessment—general total.

APÊNDICES

Appendix 1. Search strategy and databases

Databases	Search strategy
MEDLINE	("College Student"[Title/Abstract] OR "University student"[Title/Abstract] OR Student[Title/Abstract] OR Undergraduate[Title/Abstract] OR "Bachelor's degree"[Title/Abstract] OR University[Title/Abstract] OR Universities[Title/Abstract] OR Faculty[Title/Abstract] OR Academy[Title/Abstract]) AND ("Physical activity level"[Title/Abstract] OR "Physical activity"[Title/Abstract] OR "Sedentary behavior"[Title/Abstract] OR "Sedentary lifestyle"[Title/Abstract]) AND ("Quality of life"[Title/Abstract] OR Lifestyle[Title/Abstract] OR "Life quality"[Title/Abstract] OR "Health-related quality of Life"[Title/Abstract] OR "Health related quality of life"[Title/Abstract] OR HRQOL[Title/Abstract]) AND (Observational OR "Observational Study" OR Survey OR "Cross-sectional" OR Cohort OR "Case-control" OR Intervention OR "Intervention study" OR "Clinical Trial" OR "Clinical study" OR "Randomized controlled trial" OR RCT OR Association OR Relationship OR Correlation)
EMBASE	('college student':ab,ti OR 'university student':ab,ti OR student:ab,ti OR undergraduate:ab,ti OR 'bachelors degree':ab,ti OR university:ab,ti OR universities:ab,ti OR faculty:ab,ti OR academy:ab,ti) AND ('physical activity level':ab,ti OR 'physical activity':ab,ti OR 'sedentary behavior':ab,ti OR 'sedentary lifestyle':ab,ti) AND ('quality of life':ab,ti OR lifestyle:ab,ti OR 'life quality':ab,ti OR 'health-related quality of life':ab,ti OR 'health related quality of life':ab,ti OR hrqol:ab,ti) AND (observational OR 'observational study' OR survey OR 'cross-sectional' OR cohort OR 'case-control' OR intervention OR 'intervention study' OR 'clinical trial' OR 'clinical study' OR 'randomized controlled trial' OR rct OR association OR relationship OR correlation)
WEB OF SCIENCE	AB=("College Student" OR "University student" OR Student OR Undergraduate OR "Bachelor's degree" OR University OR Universities OR Faculty OR Academy) AND AB=("Physical activity level" OR "Physical activity" OR "Sedentary behavior" OR "Sedentary lifestyle") AND AB=("Quality of life" OR Lifestyle OR "Life quality" OR "Health-related quality of Life" OR "Health related quality of life" OR HRQOL) AND TS=(Observational OR "Observational study" OR Survey OR "Cross-sectional" OR Cohort OR "Case-control" OR Intervention OR "Intervention Study" OR "Clinical Trial" OR "Clinical Study" OR "Randomized Controlled Trial" OR RCT OR Association OR Relationship OR Correlation)

SCOPUS	TITLE-ABS-KEY ("College Student" OR "University student" OR student OR undergraduate OR "Bachelor's degree" OR university OR universities OR faculty OR academy) AND TITLE-ABS-KEY ("Physical activity level" OR "Physical activity" OR "Sedentary behavior" OR "Sedentary lifestyle") AND TITLE-ABS-KEY ("Quality of life" OR lifestyle OR "Life quality" OR "Health-related quality of Life" OR "Health related quality of life" OR hrqol) AND TITLE-ABS-KEY (observational OR "Observational study" OR survey OR "Cross-sectional" OR cohort OR "Case-control" OR intervention OR "Intervention Study" OR "Clinical Trial" OR "Clinical Study") AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "MEDI") OR LIMIT-TO (SUBJAREA , "NURS") OR LIMIT-TO (SUBJAREA , "PSYC")) AND (LIMIT-TO (EXACTKEYWORD , "Physical Activity")) AND (LIMIT-TO (EXACTKEYWORD , "Adult"))
LILACS	tw:((“college student” OR “university student” OR student OR undergraduate OR “bachelor’s degree” OR university OR universities OR faculty OR academy) AND (“physical activity level” OR “physical activity” OR “sedentary behavior” OR “sedentary lifestyle”) AND (“quality of life” OR lifestyle OR “life quality” OR “health-related quality of life” OR “health related quality of life” OR hrqol) AND (observational OR “observational study” OR survey OR “cross-sectional” OR cohort OR “case-control” OR intervention OR "Intervention study" OR "Clinical trial" OR "Clinical study" OR "Randomized controlled trial" OR rct OR association OR relationship OR correlation OR risk)) AND (db:("LILACS"))
GOOGLE SCHOLAR	With all of the words: "Physical Activity" AND "Quality of life" AND "University" With at least one of the words: “College Student” OR “University student” OR Student OR Undergraduate OR “Bachelor’s degree” OR University OR Universities OR Faculty OR Academy OR “Physical activity level” OR “Physical activity” OR “Sedentary behavior” OR “Sedentary lifestyle” OR “Quality of life” OR Lifestyle OR “Life quality” OR “Health-related quality of Life” OR “Health related quality of life” OR HRQOL OR Observational OR “Observational study” OR Survey OR “Cross-sectional” OR Cohort OR “Case-control” OR Intervention OR “Intervention Study” OR “Clinical Trial” OR “Clinical Study” OR “Randomized Controlled Trial” OR RCT OR Association OR Relationship OR Correlation Where my words occurs: anywhere in the article 200 most relevant hits
PROQUEST	ab("College Student" OR "University student" OR Student OR Undergraduate OR "Bachelor’s degree" OR University OR Universities OR Faculty OR Academy) AND ti("Physical activity

	level" OR "Physical activity" OR "Sedentary behavior" OR "Sedentary lifestyle") AND ti("Quality of life" OR Lifestyle OR "Life quality" OR "Health-related quality of Life" OR "Health related quality of life" OR HRQOL) AND (Observational OR "Observational study" OR Survey OR "Cross-sectional" OR Cohort OR "Case-control" OR Intervention OR "Intervention study" OR "Clinical trial" OR "Clinical study" OR "Randomized controlled trial" OR RCT OR Association OR Relationship OR Correlation OR Risk) AND at.exact("Dissertation/Thesis" OR "Article")

Appendix 2. Excluded articles and reasons for exclusion

Author, Year, Reference	Reason for exclusion
BROWN et al., 2003 [15]; GU et al., 2014 [16]; NOCE et al., 2016 [17]; SILVA et al., 2010 [18]; ZAHRAN et al., 2007 [19].	1
CAROTHERS, 2008 [20]; CORRIGAN, PIERCE, HOSIG, 2018 [21]; DUBOIS, 2006 [22]; ESPINOSA, BERMÚDEZ, 2020 [23]; FALLAHZADEH, MIRZAEI, 2012 [24]; GARRIDO et al., 2018 [25]; GRANT, WARDLE, STEPTOE, 2009 [26]; HERBERT et al., 2020 [27]; HIDALGO-RASMUSSEN, C.A, RAMÍREZ-LÓPEZ, G., HIDALGO-SAN MARTÍN, A., 2013[28]; HOSSEIN et al., 2010 [29]; JAMALI et al., 2013 [30]; KHAZAAL et al., 2016 [31]; KOTBAGI et al., 2014 [32]; KUPCEWICZ et al., 2020 [33]; KVINTOVA, KUDLACEK, SIGMUNDOVA, 2016 [34]; LINS et al., 2015 [35]; MASINA et al., 2017 [36]; NACAR et al., 2014 [37]; OBRECHT et al., 2015 [38]; ODOM, 2001 [39]; PARTONEN et al., 1998 [40]; PENGPID e PELTZER,2013 [41]; PEDIŠIĆ, Z. at al., 2015 [42]; RACHMAWATI et al., 2019 [43]; RAMSAY et al., 2015 [44]; SABBAH et al.,2013 [45]; SALARI et al., 2017 [46]; SALDIRAN, TANRIVERDI, ÇAKAR, 2019 [47]; SERINOLLI, M. I., EL-MAFARJEH, E., 2015 [48]; SUÁREZ et al., 2017 [49]; TAO et al., 2019 [50]; TASSINI et al., 2017 [51]; TOL et al., 2013[52]; VAEZ, M., LAFLAMME. L.,2003[53]; WALD et al., 2014 [54]; WEI et al., 2012 [55]; WERCH et al., 2009 [56];	2
KIZILCI et al., 2015 [57]	3
KOLOKOLTSEV et al., 2020 [58]	4

Legend: (1) Evaluated another population; (2) Did not evaluate the outcome of interest; (3) Measures of association not present; (4) Only evaluated prevalence.

Apendix 3 . Risk of bias for each individual study assessed by Joanna Briggs.

Studies	Criteria							
	1*	**2***	**3***	**4***	**5***	**6***	**7***	**8***
Chang et al., 2016	N	Y	Y	Y	Y	Y	Y	Y
Çiçek, 2018	N	Y	Y	Y	N	N	Y	Y
Dunn, 2011	N	Y	Y	Y	Y	Y	Y	Y
Ge et al., 2019	Y	Y	Y	Y	Y	Y	Y	Y
Goldsby, 2018	N	Y	Y	Y	Y	Y	Y	Y
Joo, 2018.	N	Y	Y	Y	Y	Y	Y	Y
Joseph et al., 2014	Y	Y	Y	Y	Y	Y	Y	Y
Khan; Hassandra, 2016	N	Y	Y	Y	N	N	Y	Y
Kilinç et al., 2016	N	Y	Y	Y	N	N	Y	Y
Kocaaga et al., 2018	NA	U	Y	Y	N	N	Y	Y
Kokic; Znika; Brunmnic, 2019	Y	Y	Y	Y	Y	Y	Y	Y
Kruger; Sonono, 2016	N	Y	Y	Y	Y	Y	Y	Y
Legey et al., 2017	Y	Y	Y	Y	N	N	Y	Y
Lemos; Orozco-Vargas; Cruz, 2014	N	Y	Y	Y	Y	Y	Y	Y
Maciel et al., 2013	Y	Y	Y	Y	N	N	Y	Y
Mak et al., 2017	N	Y	Y	Y	N	N	Y	Y
Masidda; Cugusi; Mathieu, 2015	U	Y	Y	Y	N	N	Y	Y
Mendoza; Bastardo, 2013	NA	Y	Y	Y	N	N	Y	Y
Nieves, 2017	Y	Y	Y	Y	Y	Y	Y	Y
Nowak; Bozek; Blukacz, 2019	N	N	Y	Y	Y	Y	Y	Y
Park, Kim, 2013.	U	Y	Y	Y	N	N	Y	Y
Pedisic et al., 2014	N	Y	Y	Y	Y	Y	Y	Y
Pekmezovic et al., 2011	N	Y	Y	Y	N	N	Y	Y
Peleias et al., 2017	N	Y	Y	Y	Y	Y	Y	Y
Pourranjbar; Zeytoonli, 2019	N	N	Y	Y	N	N	Y	Y
Snedden et al., 2019	Y	Y	Y	Y	Y	Y	Y	Y
Vo; Nguyen; Ta, 2020	N	Y	Y	Y	Y	Y	Y	Y
Yildirim; Bayrak, 2019	Y	Y	Y	Y	Y	Y	Y	Y
Zhang et al., 2016	N	Y	Y	Y	Y	Y	Y	Y
Zhang et al., 2018	Y	Y	Y	Y	Y	Y	Y	Y

Institute critical appraisal checklist for prevalence studies. Y = Yes, N = No, U = Unclear, NA = Not applicable.

1* Criteria for inclusion in the sample clearly defined;

2* Study subjects and the setting described in detail;

3* Exposure measured in a valid and reliable way;

4* Objective and standard criteria for measurement;

5* Confounding factors identified;

6* Strategies to deal with confounding factors;

7* Outcomes measured in a valid and reliable way;

8* Appropriate statistical analysis.

Table 1. Description of included studies

AUTHOR/YEAR	COUNTRY	SAMPLE (N. Sex. Age)	STUDY DESIGN	AIM OF THE STUDY
Chang et al.(2016)	Taiwan	1230.Both sexes. 18 to 25 years.	Cross-Sectional	To investigate associations between current exercise participation, sleep quality, and QoL among university students in Taiwan.
Çiçek (2018)	Turkey	150. Both sexes. 20.67 ± 1.65 years.	Cross-Sectional	To investigate Physical Activity (PA) and QoL of students in the SDS and ODS who attend the university.
Dunn (2011)	EUA	243. F. 18 to 27 (21.0± 1.70) years.	Cross-Sectional	To investigate the relationships among individual (self-efficacy and enjoyment), social environmental factors (family and friend support), physical environmental factors (residential density, pedestrian infrastructure, proximity of recreational facilities, street connectivity, aesthetic quality, land use mix, traffic safety, and crime safety), PA and HRQoL in female college students.
Ge et al. (2019)	China	926. Both sexes. 17 to 23 years. (Mean ±19,78).	Cross-Sectional	To evaluate the association between physical activity, sedentary time and sleep duration in the HRQoL of university students in Northeast China
Goldsby (2018)	EUA	998. Both sexes. 18 to 29 years.	Cross-Sectional	To evaluate the relationship between HRQOL variables, MVPA, and BMI
Park, Kim (2013)	Korea	183. NR. NR.	Cross-Sectional	To identify the relationships between PA, health status and QoL of university students.
Joo (2018)	Korea	337. Both sexes. 21.92 ± 1.14; 21.80 ± 1.16; 21.84 ± 1.17. years.	Cross-Sectional	To analyze the associations between PA and stress, interpersonal relationships, and the QoL in university students.
Joseph et al. (2014)	USA	590. Both sexes. 20.4±1.7 years.	Cross-Sectional	To add to the limited body of research examining the relationship between PA and QoL in young adults.
Khan e Hassansdra (2016)	Pakistan	378. Both sexes. 18 to 48 years.	Cross-Sectional	To explore the associations between PA, QoL and psychological health related among university students in Pakistan.
Kılınç et al. (2016)	Turkey	150. Female. 17 to 28 years.	Cross-Sectional	To determine the relationship between the QoL of female students studying at Yüzüncü Yıl University and their levels of PA.
Kocaaga et al. (2018)	Turkey	30. F. 18 to 26 years.	Cross-Sectional	To investigate the relationship between PA, FC, QoL, and sleep quality in healthy adults.

Kokic, Znika, Brumnic (2019)	Croatia	517. Both sexes. 20 ± 2 years.	Cross-Sectional	To determine and compare PA levels, health-HRQoL and the prevalence of musculoskeletal pain symptoms (MPS) among the students of Physiotherapy and Social Sciences.
Kruger e Sonono (2016)	South Africa	703. Both sexes. 19.6 ± 1.26 years.	Cross-Sectional	To investigate the role of psychosomatic problems in the relationship between PA and HRQo L.
Legey et al. (2017)	Brazil	140. Both sexes. 23.6 ± 3.7 years.	Cross-Sectional	Investigate the relationship of PA level and their domains with HRQL, mood state (MS) and anxiety.
Lemos, Orozco-Vargas, Cruz (2014)	Colo mbia	237. Both sexes. 20.6 ± 2.2 years.	Cross-Sectional	To determine the level of QoL in college students' health areas and evaluate associated factors.
Maciel et al.(2013)	Brazil	1966. Both sexes. 30.4 ± 12.4 years.	Cross-Sectional	To check for any significant differences in perceived QoL, specifically aspects of a physical nature, among volunteers who are more physically active and those less physically active in a university community.
Mak et al. (2017)	China	538. Both sexes. 18 to 31 years.	Cross-Sectional	To examine the relationships between socio-economic status, health promoting lifestyles, and QoL among Chinese N ursing students.
Massidda, Cugusi, Mathieu (2015)	Italy	155. Both sexes. 18 to 30 years.	Cross-Sectional	To investigate the relationships between different levels of PA (walking, moderate-intensity activity, vigorous-intensity activity) and HRQoL in a population of male and female University students.
Mendoza e Bastardo (2013)	Venezuela	64. Both sexes. 17 to 43 years.	Cross-Sectional	To examine the associations of PA and sedentary behavior with perceived QoL in college students in Venezuela.
Nieves (2017)	EUA	597. Both sexes. 18 to 25 years.	Cross-Sectional	To assess the relationship between the PA level and HRQoL of college students.
Nowak ,Bo˙zek , Blukacz (2019)	Poland	595. Both sexes. 18 to 30 years.	Cross-Sectional	To explore the relation between PA, sedentary behavior, and the subjective and objective indicators of QoL as well as life satisfaction among university students, whose education is related to different dimensions on health.
Pedišić et al. (2014)	Croatia	1163. Both sexes. 21.5 ± 1.8 years.	Cross-Sectional	To determine the relationship between PA in work, transport, domestic and leisure-time domains and HRQoL among university students.
Pekmezovic et al. (2011)	Serbia	1624. Both sexes. 20.8 ± 1.8 years.	Cross-Sectional	To estimate HRQoL among students of University of Belgrade (Serbia) and its associations with socio-demographic factors, habits of life and depression status.
Peleias et al (2017)	Brazil	1350. Both sexes. 17 to 40 years (Mean: 22.8±1.3)	Cross-Sectional	To evaluate the association between leisure time PA and QoL in medical students.
Pourranjbar, Zeytoonli (2019)	Iran	374. Both sexes. Mean: 22.4 years.	Cross-Sectional	To investigate the lifestyle, QoL and PA barriers among female students of Kerman University of Medical Sciences, Iran.
Snedden et al. (2019)	EUA	2164. Both sexes. Mean: 19,7 years.	Cross-Sectional	To examine and compare the role of self-assessed sport and PA involvement on HRQoL among undergraduate student-athletes and general undergraduate college students.

Vo, Nguyen, Ta (2020)	Vietnam	712. Both sexes. 19 to 35 years.	Cross-Sectional	To obtain an in-depth understanding of the QoL of medical students in southern Vietnam.
Yildirim, Bayrak (2019)	Turkey	1057. Both sexes. 19 to 27 years.	Cross-Sectional	To evaluate the participation of university students in PA based on sport and the effects of QoL on the students' academic achievement and socialization.
Zhang et al.(2016)	EUA	325. Both sexes. Mean: 21.4 years.	Cross-Sectional	To examine the relationships among 2 X 2 achievement goal orientations, PA, and HRQoL in college students.
Zhang et al. (2018)	EUA	235. F. Mean: 21.0 years.	Cross-Sectional	To examine the influences of individual (e.g., self-efficacy, enjoyment), social (e.g., family and friend support), and physical environmental factors (e.g., crime safety) on college women's PA and HRQoL.

NR: Not Reported; F: Female QoL: Quality of Life; PA: Physical Activity; SDS: Sports department; ODS: Others departments; HRQoL: Health Related Quality of Life; MVPA: moderate/vigorous physical activity; BMI: Body Max Index; FC: Functional Capacity.

Table 2 Instruments used to assess QOL and PA

AUTHOR/YEAR	QOL INSTRUMENT	QOL RESULT-SCORE	PA INSTRUMENT	PA RESULT-SCORE
Chang et al. (2016)	Taiwan version of SF-36.	PCS F: 51.66 ± 6.60 PCS M: 52.68 ± 6.19 MCS F: 43.84 ± 9.36 MCS M: 44.33 ± 9.06	Questionnaire developed by the Ministry of Education.	Exercise frequency F : 2.00 ± 1.41 Exercise frequency M: 2.63 ± 1.71
Çiçek (2018)	WHOQo L-BREF	F: Phys. H: 25,80±4,20; Psy. H: 22,40 ±5,25; SR: 15,50±6,46; E: 28,06±4,58. M: Phys. H: 26,26±4,54; Psy. H: 22,66 ±3,81; SR: 18,28±7,08; E: 28,60±5,11.	IPAQ Short	SA F: 894.84±1406,46; MA F: 432.13±735,34; LA F: 1281,77±927,65; TA F: 2592.44±2276.82 ST F: 366.19±177.14. SA M: 2500.07±2743.46; MA M: 432.13±735.34; LA M: 1702.41±1450.68; TA M: 4938.86±3919.33; ST M: 368.28±178.41.
Dunn (2011)	The Young Adult Quality of Life Inventory.	NR	Six items (2-7) from the 2001 BRFSS.	NR.
Ge et al. (2019)	SF-12 Chinese version.	PCS : LA: 47.98±8.82 MA: 49.76 ±7.69 HA: 50.76± 8.16. MCS : LA: 49.23±9.15 MA: 49.98±9.61 HA: 50.23±9.58. PCS: ST: < 6 h/day: 49.47±8.91; 6–< 8 h/day: 49.66±8.27; 8–< 10 h/day: 50.65±7.42; ≥10 h/day: 50.47±7.47. MCS: ST: < 6 h/day: 50.32±8.92; 6–< 8 h/day: 50.30±9.42; 8–< 10 h/day: 48.74±10.40; ≥10 h/day: 50.64±9.36.	IPAQ – Long Form	F: LA: 36 (11.7%); MA: 105 (34.1%); HA: 167 (54.2%). M: LA: 84 (13.6%); MA: 264 (42.7%) HA: 270 (43.7%).
Goldsby (2018)	QoL Questionnaire	NR	IPAQ	NR.
Joo (2018)	The Korean version of WHOQOL-BREF.	QoL (total score): 92.14 ± 14.83(LA); 93.54 ± 14.27(MA); 93.95 ± 12.58 (HA). Phys D: . 26.30 ± 4.46 (LA); 27.23 ± 4.60 (MA); 27.58 ± 4.43 (HA); Psy. D: 23.39 ± 3.25 (LA); 23.04 ± 4.38(MA); 23.04 ± 3.78(HA); SD: 11.75 ± 1.47 (LA); 11.94 ± 1.98(MA); 11.97 ± 1.66 (HA); ED: 30.69 ± 3.55(LA); 31.32 ± 4.91 (MA); 31.35 ± 4.31 9(HA).	The Korean version of IPAQ.	IA: 3 (0.9) (LA); 2 (0.6) (MA); 8 (2.4) (HA); MA: 18 (5.3) (LA); 18 (5.3) (MA); 58 (17.2) (HA); Li. A: 46 (13.6) (LA); 63 (18.7) (MA); 44 (13.1) (HA); SED: 38 (11.3) (LA); 17 (5.0) (MA); 10 (3.0) (HA).
Joseph et al.	SWLS	SWLS: M: 25.5 ± 5.2; F: 25.8 ± 5.5.	PSWS	PSWS: M: 18.4 ± 3.7; F: 16.9 ± 3.7.

(2014)				
Khan e Hassansdra (2016)	SF-36	NR	IPAQ	NR
Kılınç et al. (2016)	WHOQOL-BREF	NR	IPAQ	NR
Kocaaga et al. (2018)	SF-36	NR	IPAQ	NR
Kokic, Znika, Brumnic (2019)	SF-36	PF: 90±50; RFP: 100±37.5; BP: 70.5±29; GH: 70±25; V 62.5±28.1; SF: 75±42; RFE: 100±33.3; MH: 50±25; PCS: 55.7±11; MCS: 48.3±8.9.	IPAQ Short Form	Total PA: 3,759±4,341; VIPA: 960±2880; MIPA: 720±1330; Walking: 1,188±2,326.5; LA: 57±11; MA: 1,41±27.3; HA: 3,19±61.7.
Kruger e Sonono (2016)	Questionnaire developed by Haskell et al., 2007.	PA: M: 4.11±1.84; F: 3.32±1.59.	Questionnaire developed by SASAS, 2012.	SWLS: M: 4.85±1.21; 4.88±1.24.
Legey et al. (2017)	SF-36	NR	The instrument proposed by Baecke et al., 1982.	NR
Lemos, Orozco-Vargas, Cruz (2014)	Q-LES-Q	QoL: 51±6,8.	IPAQ	NR
Maciel et al. (2013)	WHOQOL-BREF	NR	IPAQ	NR
Mak et al. (2017)	WHOQOL-BREF	Social relationships: 13.74± 2.30; Environmental: 13.52±2.04; Psychological health: 13.10 ±1.76; Physical health: 12.15±1.86	HPLP-II	PA Total Score: 128.23±17.37.
Massidda, Cugusi, Mathieu (2015)	SF- 36	NR	IPAQ	NR
Mendoza e Bastardo (2013)	SF-36	NR	SF-36; EQ-5D; EQ-VAS.	NR
Nieves (2017)	SF-36	NR	PA-R.	NR
Nowak ,Bo˙zek , Blukacz (2019)	COMQOL-A5	QoL: Productivity: 8.05±6.64; Intimacy: 12,51±7,23; Safety: 10,66±6,75; Community:5,65±7,07; Emotional: 9,63±8,38; SWLS: 21,34±4,89.	IPAQ	Leisure time: 1668.00 (0,0-32100,00); Domestic and gardening: 1200,00 (0,00 - 18660.00); Work related: 5436.00 (33,00 - 49560.00); Transport-related: 1485.00 (49,50 - 20790.00); Sedentary weekly: 300.00 (30,00-

				900,00); Sedentary weekend: 300,00 (30,00 – 900,00).
Park, Kim (2013)	WHOQOL-BREF	QoL: 3,429 ± 0,379 (2,50-4,35).	Self-reported physical activity questionnaire, about the last 7 days.	Total PA: 2529,40 ± 5057,896 (0-59640); Walking activity: 1172.33 ± 2768.614 (0-35640); MA: 360.66 ± 908.884 (0-7200); VA: 996.42 ± 2630.122 (0-17280);
Pedišić et al. (2014)	SF- 12v2	NR	IPAQ	NR
Pekmezovic et al. (2011)	SF-36	SF-36: Total Score: 76.7 ± 15.; Physical functioning: 93.7 ± 12.5; P hysical role: 83.3 ± 27.6; Pain: 83.1 ± 19.5; General health: 74.3 ± 17.4; Vitality: 64.1 ± 21.1; Social functioning: 77.8 ± 22.3; E motional role: 67.1 ± 40.5; Mental health: 69.9 ± 20.5; Physical composite score: 79.7 ± 13.7; Mental composite score: 70.6 ± 18.8.	Questions about moderate activities that increase breathing or heart rate, moderated for at least 10 minutes.	Never PA: 71.6 ± 18.3 (Total SF-36 score ± SD); Occasionally PA: 74.3 ± 14.9 (Total SF-36 score ± SD); Weekly: 78.4 ± 14.3 (Total SF-36 score ± SD); Everyday: 80.0 ± 14.4 (Total SF-36 score ± SD).
Peleias et al (2017)	WHOQOL-BREF	QoL self-assessment—general: 7.9±1.27; WHOQOL-BREF: Physical health: 65.2±14.70; Psychological: 61.7±15.69; Social relations: 63.6±19.89; Environment: 63.8± 14.08;	Questions for both global leisure time PA.	No PA: F: 329 (46.0%); M: 206 (32.3%). Low PA: F: 88 (12.3%); M: 56 (8.8%). Moderate PA: F: 147 (20.5%); M: 156 (24.5%). High PA: F: 150 (21.0%); 218 (34.2%).
Pourranjbar, Zeytoonli (2019)	The brief version of the quality of life questionnaire including 26 items.	Awareness of the benefits of PA: 4,43±0,63(n=374); Weight and Nutrition: 2,70±0,66 (n=371); Participation in PA: 2.17±0,75 (n=372); Psychological aspects and attitude: 2,63±0,67 (n=368); interpersonal and social relationships: 3,34±0,63 (n=370); Using the Internet and social networks: 2,43±0,66 (n= 372); Sleep and rest: 2,61±0,68 (n= 374); Disease prevention and individual health: 3,63±0,53 (n= 370); Social health: 3,24±0,74 (n= 373); smoking, alcohol and drugs consumption: 3,78±0,71 (n= 366).	IPAQ	Participated in PA just one session/week: 35,9%; two sessions/week: 30,5 %; three sessions/week: 16,3%.

Snedden et al. (2019)	VR-12, composed of PCS and MCS	Division I Athlete: PCS Score: 55.02±3.9; MCS Score: 55.58±7.0. General Undergraduate: PCS Score: 55.49±5.3; MCS Score: 43.26±11.4.	Self-assessed sport and PA level categorized as Division I athlete, club athlete, intramural player, student who works out regularly, or student who is physically inactive.	Club athlete: 122 (9.2%); Intramural player: 193 (23.2%); Works out regularly: 705 (53.3%); Physically Inactive: 302 (22.8%).
Vo, Nguyen, Ta (2020)	WHOQOL-BREF	Physical: F: 52.62 ± 13.09; M: 57.06 ± 13.02. Psychological: F: 50.34 ± 14.85; M: 52.08 ± 15.84. Social: F: 59.61 ± 15.45; M: 57.47 ± 17.57. Environmental: F: 53.59 ± 14.49; M: 55.48 ± 15.82.	Sociodemographic questionnaire	Frequency of physical activity (times per week): Never: 267 (37.5%)
Yildirim, Bayrak (2019)	WHOQOL-BREF	Life quality: 98.2875±12.48586; Perceived Quality of Life: 3.5848±0.75296; Perceived Quality of Health: 3.7251±0.80152; Physical Health Dimension: 15.0426±2.24911; Mental Health Dimension: 14.7122±2.22713; Social Relations Dimension: 14.5289±2.87120; Environmental Health Dimension (TR): 14.0953±2.06584; Socializing with SDFA: 3.7021±0.58256; Personal and Social Integration: 4.0062±0.74515; Leadership: 3.2963±0.90637; Belonging: 3.7917±0.80557; Self-confidence: 3.4669±0.89327.	Cooper physical activity scale	Sedentary: 295 (28,8%); Low Active: 218 (21,2%); Moderately Active: 183 (17,8%); Highly Active: 330 (32,2%)
Zhang et al.(2016)	23-item Quality of Life Inventory	NR	IPAQ	NR
Zhang et al. (2018)	The Young Adult Quality of Life Inventory.	Self-efficacy: 3,43±0,83; Enjoyment:5,74 ±0,96; Family support: 2,24±1,02; Friend support: 2,79±1,08; Crime safety: 3,15±0,95; Physical functioning: 81,25±14,61; Psychosocial functioning: 76,75±13,18.	Six items from the 2001 Behavioral Risk Factor Surveillance System physical activity module.	MVPA (min/week): 460.54±619.62;

NR: Not Reported. QoL: Quality of Life; PA: Physical Activity; WHOQOL-BREF: Quality of Life questionnaire-short form; SF- 36: Medical Outcomes Study 36-Item Short-Form Health Survey; IPAQ: International Physical Activity Questionnaire; PCS: Physical Component Summary; MCS: Mental Component Summary; F: Female; M: Male; Phys. H: Physical Health; Psy. H: Psychological Heath; SR: Social relationships; E: Environment; SA: Severe Activity; MA: Moderate Activity; LA: Low Activity; TA: Total Activity; BRFSS: Behavioral Risk Factor Surveillance System; ST: Sitting Time; HA: High Activity; Phys D: Physical Domain; Psy. D: Psychological Domain; SD: Social Domain; ED: Environment domain; IA: Intense activity; Li A: Light Activity; SED: Sedentary; GLT: Godin Leisure Time; PSWS:

Physical Self-Worth Scale; SWLS: Satisfaction With Life Scale; VIPA: Vigorous-intensity PA; MIPA: Moderate-intensity PA; PF: Physical functioning; RFP: Role functioning/physical; BP: Bodily pain; GH: General health; V: Vitality; SF: Social functioning; RFE: Role functioning/emotional; MH: Mental health; Socializing with SDFA: socializing with the physical activities based on sports; MVPA: moderate-to-vigorous physical activity.

Table 3 Outcomes of included studies

ARTICLE	STATISTICAL TESTS USED	ADJUSTMENT VARIABLES	OUTCOMES	
			MAIN RESULTS	IS PA PRACTICE RELATED TO BETTER QOL?
Chang et al.(2016)	Correlation AND Association	BMI; self-perceived health; satisfaction with exercise participation; gender; effect of exercise.	Exercise frequency was significantly correlated with higher mental QOL (MCS) scores; Higher scores on most of the domains of QOL, except for bodily pain (r = −0.111, P = .013) in males.	YES (MCS)
Çiçek (2018)	Correlation	NR	Correlation between PA and WHOQo L: Relationship between high levels of PA and total PA with physical, psychological, social relationships and the environment (p <0.005 and p <0.001). Low levels of PA with physical and social relationships, and also, moderate PA and sitting time had a significant difference in social relationships (p <0.005 and p <0.001).	YES (Physical, Psychological, social relationships; environmental)
Dunn (2011)	Correlation	NR.	Positive correlations: social support from family and friends and PA and HRQo L. PA was significantly correlated with physical HRQo L (r = .19, p < 0.01) but not with psychosocial HRQo L (r = .02).	YES (Social support from family and friends HRQoL)
Ge et al. (2019)	Association	Gender; age; grade; specialty; BMI; home location; monthly living expenses; PA and ST (for sleep duration); PA and sleep duration (for ST) or ST and sleep duration (for PA);	Positive impact of PA on the HRQo L. A higher score for PCS and MCS: better HRQ oL. The effect of PA on the HRQo L of college students was independent of the effect of ST on the HRQo L.	YES (PCS; MCS)
Goldsby (2018)	Association	QVRS, Sex, MVPA, Sleep duration.	No statistical evidence found supporting a mediating effect of MVPA on the relation between HRQo L.	NO
Joo (2018)	Association	Age; sex; grade; smoking; alcohol drinking; number of breakfasts per week and activity of daily living.	The high and moderate PA groups obtained significantly lower scores for PWI than the low group (P <0.05) and the high group obtained significantly higher scores for interpersonal relationships than the low group (P < 0.05).	YES. (Lower scores for PWI and interpersonal relationship).
Joseph et al. (2014)	Association	BMI; Gender, Race; physical self-esteem; Exercise Self-Efficacy; Positive Affect; Negative Affect.	The PA model (RMSEA = .03, CFI = .99) accounted for 25% of the variance in Qo L. PA had positive direct effects on exercise self-efficacy (b = .28, P \ .001) and physical self-esteem (b = .10, P \ .001), Physical self-esteem was found to be the most powerful mediating variable on QOL (b = .30, P \ .001).	YES. (exercise self-efficacy, physical self-esteem)

Khan e Hassansdra (2016)	Correlation	NR	Psychological suffering showed a negative correlation with all IPAQ scores (r = -0.12, p <0.05) and a significant negative relationship with vigorous PA (r = -0.10, p <0.05) and walking (r = -0.113, p <0.05). The summary of the physical component of the SF-36 showed a significant positive association with the summary of the mental health component of the SF-36 (r = 0.72, p <0.01), general quality of life score (r = 0 , 91, p <0.01) and vigorous physical activity (r = 0.10, p <0.05). The summary of the SF-36 mental component had a positive relationship with overall quality of life (r = 0.91, p <0.01), vigorous physical activity r = 0.12, p <0.05 and general physical activity (r = 0.12, p <0.05). G eneral quality of life was significantly correlated with vigorous PA (r = 0.10, p <0.05) and walking (r = 0.86, p <0.01).	YES. (PCS; MCS, General QoL)
Kılınç et al. (2016)	Correlation	NR	The relationship between QoL and PA : the relationship between OFA and EFA a significant relationship was found between OFA and EFA (r = 0.463; <0.05), between walking and OFA (0.302), between MET and EFA (0.819), between MET and OFA (0.756), MET and walking (0.506). As for walking and AFA (r = 0.097) and physical area and OFA (0.055), no relationship was found.	YES. (OFA, EFA)
Kocaaga et al. (2018)	Correlation	NR	Positive correlation between physical 6- minute-long walk test and IPAQ walking score (r=0.194, p<0.05), IPAQ moderate and SF36 emotional status (r=0.253, p<0.05).	YES (SF- Emotional Status)
Kokic, Znika, Brumnic (2019)	Correlation AND Association	Age; Gender; BMI; Course of Study.	The mental health domain was negatively associated with vigorous-intensity PA (p <0.05; rs = -0.101), moderate-intensity PA (p <0.05; rs = -0.103) and total PA (p <0.05 ; rs = -0.125). Overall health was in a positive relationship with vigorous intensity PA (p <0.05; rs = 0.121), moderate intensity BP (p <0.05; rs = 0.103), total PA (p <0.05; rs = 0.115), and in a negative relation as time spent sitting (p <0.05; rs = -0.120).	YES. (Mental Health Domain, overall Health)
Kruger e Sonono (2016)	Correlation	NR	Positive relationship between AF and QoL (β = 0.11). Those who practice PA were satisfied with their Q oL. AF had a negative relationship with psychosomatic health related to problems (β = -0.23). Likewise, psychosomatic health related to problems had a negative relationship with Qo L (β = -0.39).	YES. (General Qol, psychosomatic health related to problems)

Legey et al. (2017)	Association	NR	Negative correlation was found between LTPA and total mood disorder (TMD) (p = 0.004). Positive correlations between the vigor subscale and both LTPA (p=0.001) and total PAL (p=0.019). LTPA and total PAL demonstrated positive coefficients with the PCS (p=0.000; p = 0.005), MCS (p = 0.000; p = 0.006) and total HRQL (p = 0.000; p = 0.003).	YES. (TMD; vigor subscale; PCS, MCS and Total HRQoL).
Lemos, Orozco-Vargas, Cruz (2014)	Association	Sex; Age; Children; Socioeconomic Stratum; Weekly hours of classroom academic hours; Acute Pain; Chronic pain; Vigorous physical activity.	The levels of physical activity were AFB 85.2%, AFM 6.4%, AFV 8.4% and regular assets 11.4%. Factors negatively associated with quality of life: weekly hours of academic presence and the presence of acute as chronic pain. The practice of VFA was positively associated.	YES (weekly hours of academic presence and the presence of acute as chronic pain)
Maciel et al.(2013)	Association	NR	The data association between the practice of PA and positive perception of Qo L in aspects of physical therapy that are related to a capacity for work, energy for daily activities and locomotion.	YES. (capacity for work; energy for daily activities, locomotion)
Mak et al. (2017)	Association	Interpersonal relationship; Spiritual growth; Nutrition; Stress management; Health responsibility; Physical activity	The social domain obtained the highest classification (mean = 13.7), followed by environmental (mean = 13.5), psychological (mean = 13.1) and physical (mean = 12.2). Significant associations were observed between Qo L and four HPL variables after control for socioeconomic variables: responsibility for health (estimate coefficient = -0.265, SE = 0.083, P = 0.002), physical activity (estimate coefficient = 0.169, SE = 0.071, P = 0.018), spiritual growth (estimate coefficient = 0.428, SE = 0.097, P <0.0001) and stress management (estimate coefficient = 0.277, SE = 0.092, P = 0.003).	YES. (Responsibility for health; spiritual growth; stress management).
Massidda, Cugusi, Mathieu (2015)	Association	Types and frequencies of PA; Age; BMI; total weekly Energy Expenditure	Women had significantly lower scores for GH (F = 5,057; gl = 1; p = 0.02), MH (F = 5,240; gl = 1; p = 0.02) and summary of the mental component (MCS) (F = 4,745; df = 1; = 0.03) domains than men. Vigorous activity (F = 16,230; gl = 1; p = 0.01) and EE (kcal) during the week (F = 6,377; gl = 1; p = 0.01) were higher in men. As for the PA categories, 7.40% of women (age = 23.1 ± 2.3 years; BMI = 21.8 ± 2.2); 20.8% of men (age = 23.2 ± 3.9 years; BMI = 22.5 ± 2.2) were classified as moderate; 79.1% (age = 21.7 ± 2.9 years; BMI = 22.4 ± 1.9) in the high PA categories. There were no significant differences (p> 0.05) between the PA categories and HRQoL scores for men, there was a tendency for higher scores with the increase in PA levels in both sexes. The differences in scores between women who practice low and high PA physical exercises were at least five points in MH, MCS and PCS, and approximately more than ten points in GH and SF. The most influenced variable was the PR in both sexes, while	YES. (MH, MCS, PCS, GH, SF)

			the regular frequency of PA during the week was the most important positive predictor for the highest scores in most HRQOL domains in both sexes.	
Mendoza e Bastardo (2013)	Correlation	NR	Subjects reported engaging in vigorous PA for an average of 2.05 days during the previous week. The subjects reported walking for an average of 93.49 minutes during the previous week. Neither PA nor sedentary behavior was associated with QoL in this population.	NO.
Nieves (2017)	Correlation	NR	A positive correlation was found between PA level and PF, which was statistically significant (r=.124, p=.019). A positive correlation was also found between PA-R and role limits due to emotional health problems, (r=.221, p=.003). The relationship between PA level and role limits due to physical health was not significant (r=-.032, p=.429).	YES (Emotional health problems).
Nowak ,Bo˙zek , Blukacz (2019)	Correlation	NR	Domestic activity positively relates to the importance score (p < 0.001), satisfaction score (p = 0.017), and productivity (p = 0.001) and intimacy (p = 0.004) domains of the Qol. Work-related activities negatively relate to material QoL (p = 0.025) and positively to communicative QoL (p = 0.033). Transport activities seem to positively relate to importance score of QoL (p = 0.001). Sedentary weekly activities are positively related to satisfaction score (p = 0.047) and intimacy domain of the QoL (p = 0.030). In contrast, sedentary weekend activities negatively relate to importance score (p= 0.011), satisfaction score (p = 0.004), intimacy (p = 0.023), safety (p = 0.018), and communication (p = 0.014) domains of QoL	YES. (Satisfaction score; productivity; intimacy, safety, and communication).
Park, Kim (2013)	Correlation	NR	A positive relationship between moderate and vigorous activity and health status. The QOL positively correlated with physical health (under health status). However, PA was not related with both a QOL.	YES. (Health status, physical health).
Pedišić et al. (2014)	Correlation	NR	In females, leisure-time PA was positively related to General Health, Vitality and HRQoL-total score. In males, transport-related PA yielded no statistically significant relationship with any of the HRQoL measures. The results indicate a significant but low relationship between PA and different HRQoL domains in the population of university students after adjustment for age, size of community, personal monthly bud get, body mass index, smoking habits and alcohol intake.	YES. (General Health, vitality, HRQoL Total Score)
Pekmezovic et al. (2011)	Correlation	NR	The highest values of the SF-36 scales were obtained for Physical Functioning (93.7). The highest proportion of students (36.5%) reported	YES. (Physical Functioning)

			weekly practice of physical activity. Based on the comparison across the physical activity categories, there is a clear pattern of differences in the total SF-36 scores (P = 0.001).	
Peleias et al (2017)	Association	Age, Sex , Year of medical course;	Males had higher WHOQo L physical health (p<0.001) and psychological (p<0.001) domain scores. In the group that reported no leisure time PA as the reference group, there was a significant association between moderate and high levels of leisure time PA and better QoL for all measurements. For low volume of PA, this association was also significant for most QoL measure ments, with the exceptions of WHOQo L physical health (p=0.08) and social relationships (p=0.26) domains, in which only a non-significant trend towards a positive association was observed. There has been significant interaction between high volume of leisure time PA and general QoL (p = 0,04), ambivalent domain of WHOQo L (p <0,001).	YES. (Physical Health, psychological domain, General QoL, environment domain)
Pourranjbar, Zeytoonli (2019)	Correlation	NR	All students were aware of the positive benefits of PA. Both severe and moderate activities had significant relationships with physical and psychological health, social relationships and the environment (p <0.005 and p <0.001, respectively), while low activity had a significant relationship only with social relationships (p < 0.005).	YES. (physical and psychological health, social relationships and the environment domains).
Snedden et al. (2019)	Association	Sex, Year in school;	Significant differences in MCS were noted between levels of sport and PA ; however, such differences were not detected in PCS. After controlling for sex, a positive relationship between increased sport and PA level and greater MCS was found.	YES. (Level of sports, MCS)
Vo, Nguyen, Ta (2020)	Association	Gender; Relatives work at healthcare sector; BMI; Frequency of physical activity; Sleep duration; Use of sleeping medication; Frequency of social activities.	Overall, the number of study years was significantly associated with QoL in the physical domain (p = 0.035) ; after stratifying based on academic year and repeating the test, a gender difference was seen, where males had higher scores than the females in the physical and psychological domains in the fourth year and in the physical domain in the sixth year (p = 0.000, p = 0.006, p = 0.004, respectively). Significantly higher mean scores were observed in all four evaluated domains in students who partook of physical activity 3 to 4 and 4 or more times a week, whereas participants with no physical activity (except for third-year students) had lower scores in all four domains (physical, p = 0.000; psychological, p = 0.000; social, p = 0.133; and environmental, p = 0.001).	YES. (Physical; psychological, social and environmental domains).

Yildirim, Bayrak (2019)	Correlation	NR	A significant relationship (p<0.01) in a positive way has been determined between physical activities based on sports and quality of life (0.57), between joining in physical activities based on sports and academic standing (0.43), between joining in physical	YES. (General QoL)
Zhang et al.(2016)	Correlation	NR	Participants reported relatively high levels of the achievement goal orientations, physical activity, and HRQo L. Mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goal orientations were all positively related to one another with no to moderate correlation coefficients. PA had low positive correlations with the mastery approach and performance-approach goal orientations but no correlations with the mastery-avoidance and performance- avoidance goal orientations. HRQo L had low negative correlations with the mastery-avoidance and performance avoidance goal orientations but had a low positive relation with the mastery approach goal orientation and physical activity (Morrow, Jackson, Disch, & Mood, 2011; Zhu, 2012).	YES. (General QoL; mastery approach; performance-approach goal orientations.)
Zhang et al. (2018)	Association	Enjoyment; Barrier self-efficacy; Family support; Friend support ; Crime safety	Enjoyment of physical activity was positively related to barrier self-efficacy, social support from family and friends, physical activity, HRQoL-physical functioning, and HRQoL psycho social functioning (r's ranging from 0.28 to 0.54, all p < .01). Positive correlations were observed between social support from family and friends, physical activity, and HRQoL. Additionally, physical activity was correlated with HRQoL-physical functioning (r = 0.19, p < .01), but not with HRQoL-psychosocial functioning (r = 0.02).	YES. (Barrier self-efficacy, social support from family and friends, physical activity, HRQoL-physical functioning, and HRQoL psycho social functioning, general QoL).

NR: Not reported. QoL: Quality of Life; PA: Physical Activity; SF – 36: Medical Outcomes Study 36-Item Short-Form Health Survey; WHOQoL-BREF: Quality of Life questionnaire-short form; IPAQ: International Physical Activity Questionnaire; BRFSS: Behavioral Risk Factor Surveillance System; HRQoL: health-related quality of life. QoL: Quality of Life; PA: Physical Activity; SF-12: 12-Item Short-Form Health Survey; IPAQ: International Physical Activity Questionnaire; ST: Sedentary Time; PCS: Physical Component Summary; MCS: Mental Component Summary; MVPA: moderate/vigorous physical activity; MVPA: Moderate/vigorous Physical Activity; YQoLR: Youth Quality of Life Instrument Research version; YRBS: Youth Risk Behavior Survey; WHOQoL-BREF: Quality of Life questionnaire-short form. QoL: Quality of Life; PA: Physical Activity; WHOQOL-BREF: Quality of Life questionnaire-short form. IPAQ: International Physical Activity Questionnaire; PWI: Korea Socio-Psychosocial Well-Being Index; SWLS: The 5-item Satisfaction with Life Scale; PSWS: Physical self-esteem was measured by the 6-item Physical Self-Worth Scale; SF – 36: Medical Outcomes Study 36-Item Short-Form Health Survey. QoL: Quality of Life; PA: Physical Activity; WHOQoL-BREF: Quality of Life questionnaire-short form. IPAQ: International Physical Activity Questionnaire; OFA: Moderate Physical Activity; EFA: Heavy physical activities; MET: Metabolic Threshold. SF – 36: Medical Outcomes Study 36-Item Short-Form Health Survey.Qo: Quality of Life; PA: Physical Activity; SF- 36: SF – 36: Medical Outcomes Study 36-Item Short-Form Health Survey; PAL: Physical activity level; HRQoL: health-related quality of life.

LTPA: Leisure-time physical activity; MS: Mood state; PAL: Physical Activity Level; PCS: Physical component summary; MCS: Mental component summary; Q-LES-Q: Quality of Life Enjoyment and Satisfaction Questionnaire; AFB: Low Physical Activity; AFM: Moderate Physical Activity; AFV: Vigorous Physical Activity; WHOQoL-BREF: Quality of Life questionnaire-short form; IPAQ: International Physical Activity Questionnaire; HPLP- II: The Health-Promoting Lifestyle Profile II; HPL: Health promoting lifestyles. QoL: Quality of Life; PA: Physical Activity; SF- 36: SF – 36: Medical Outcomes Study 36-Item Short-Form Health Survey; IPAQ: International Physical Activity Questionnaire; GH: General Health; MH: Mental Health; EE: Energy Spending; BMI: Body Mass Index; HRQoL: Health Related Quality of Life; PCS: Physical Component Summary; SF: Social Functioning; EQ-5D: EuroQol health states descriptive system; EQ- VAS: visual analogue scale; PA- R: NASA/JSC Physical Activity Rating Scale; PF: Physical functioning; COMQo L-A5: Comprehensive Quality of Life Scale—Adult. QoL: Quality of Life; PA: Physical Activity; SF- 12v2: The 12-item Short-Form Health Survey; HRQoL: Health Related Quality of Life; IPAQ: International Physical Activity Questionnaire; SQLS: Life satisfaction was measured using the Satisfaction With Life Scale; MVPA: Moderate or vigorous-intensity PA; SF – 36: Medical Outcomes Study 36-Item Short-Form Health Survey. QoL: Quality of Life; PA: Physical Activity; WHOQoL-BREF: Quality of Life questionnaire-short form; IPAQ: International Physical Activity Questionnaire; SF- 12: 12-item Short Form Health Survey; PARCY: Physical Activity Rating for Children and Youth; PQoL: Physical QoL; MQoL: Mental QoL. QoL: Quality of Life; PA: Physical Activity; VR-12 : Veterans RAND 12 Item Health Survey; PCS: Physical component score; MCS: Mental component score; QoL: Quality of Life; PA: Physical Activity; IPAQ: International Physical Activity Questionnaire; HRQoL: Health Related Quality of Life; ST: Sitting time.

6. CONSIDERAÇÕES FINAIS

A prática de atividade física é benéfica em qualquer faixa etária. Os estudantes de ensino superior estão mais propensos ao sedentarismo, por diversas situações, principalmente devido às grandes mudanças e acúmulo de responsabilidades nessse período.

Os resultados dessa revisão mostram que a atividade física tem relação com melhor qualidade vida naqueles estudantes mais ativos fisicamente. Mesmo com a heterogeneidade metodológica, o uso de diversos questionários para a avaliação tanto da qualidade de vida quanto da atividade física, o que impede a padronização e a escolha do melhor tipo de instrumento a ser utilizado na avaliação dos estudantes, observou-se um maior uso do Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36); Quality of Life questionnaire-short form (WHOQOL-BREF); International Physical Activity Questionnaire (IPAQ). Entretanto, como todos os estudos incluídos nessa revisão são do tipo transversal, não é possível avaliar a longo prazo o efeito da atividade física na qualidade de vida desses estudantes, sendo necessários estudos longitudinais que avaliem esse tema.

É importante desenvolver estudos com universitários, para que ações sejam desevolvidas pelos governos, pelas instituições de ensino e até pela população local, com o intuito de criar políticas públicas que amparem esses estudantes, possibilidando a eles um período universitário menos tumultuado e uma melhor qualidade de vida. Por tratar-se em sua maioria de um público jovem, os hábitos desevolvidos e consolidados nessa fase, tendem-se a refletir na fase adulta, ressaltando mais uma vez a importancia de ações de promoção, prevenção e tratamento desses indivíduos.

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