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Rola aktywności fizycznej i diety

w radzeniu sobie ze stresem menagera w czasie pandemii

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WPROWADZENIE

Na początku 2020 roku pandemia COVID-19 spowodowała istotne zmiany w funkcjonowaniu społeczeństw całego świata. Nieznany dotąd wirus stanowił, i nadal stanowi, poważne zagrożenie, zwłaszcza dla osób cierpiących na choroby przewlekłe. Nowość i dramatyczność sytuacji została spotęgowana niespójną polityką informacyjną ze strony mediów i rządów wielu krajów, co jeszcze bardziej skomplikowało i tak już trudną sytuację. Troska o zdrowie własne i bliskich, często przyczyniała się do znacznego wzrostu lęku i pogorszenia stanu zdrowia psychicznego (Chang et al., 2021). Chociaż media zwracały uwagę głównie na fizyczne problemy zdrowotne związane z COVID-19, wiele badań wykazało pogorszenie zdrowia psychicznego, w szczególności w zakresie depresji i zaburzeń lękowych (Heitzman, 2020; White & Van Der Boor, 2020; Wang & Boros, 2021).

Kiedy w marcu 2020 roku Światowa Organizacja Zdrowia (2020) ogłosiła, że koronawirus stanowi globalną pandemię, wiele rządów ogłosiło lockdown, ograniczając wychodzenie z domów, a w tym przemieszczanie się do pracy. Osoby mające kontakt z osobami zakażonymi musiały poddać się kwarantannie, aby ograniczyć rozprzestrzenianie się wirusa. Jak sugerują raporty z badań przeprowadzonych w wielu krajach (Meyer et al., 2020; Skurvydas et al., 2021), lockdown skutkował zakłóceniami praktyk żywieniowych i aktywności fizycznej, a także niekorzystnymi zmianami masy ciała, m.in. spowodowanymi siedzącym trybem życia. Osoby, które przed pandemią prowadziły zdrowy tryb życia, a w szczególności dbały o dietę i były aktywne fizycznie, mogły mieć trudności z kontynuowaniem tych praktyk podczas pandemii COVID-19, co spowodowało m.in. wzrost masy ciała osób na całym świecie. Zjawiskiem tym jest nowa pandemia, określana mianem covibesity (Khan & Moverley Smith, 2020). Biorac pod uwagę znaczący wpływ mediów społecznościowych na postrzeganie atrakcyjności fizycznej i własnego ciała, dyskomfort związany z wyglądem mógł mieć znaczący wpływ na samopoczucie ludzi w czasie pandemii. Ze względu na spędzanie znacznej ilości czasu na platformach mediów społecznościowych, wiele osób obserwuje swój wizerunek przez dłuższy czas niż przed pojawieniem się istotnego rozkwitu mediów społecznościowych (Pfund et al., 2020). Jedna trzecia osób, które koncentrują się na swoich zdjęciach przez długi czas, doświadcza obniżenia satysfakcji ze swojego wyglądu (Pikoos et al., 2021). Co więcej, trudności w uczestniczeniu w codziennych czynnościach i negatywne postrzeganie własnego wygladu, mogły powodować istotne zmiany w diecie, co może przyczynić się do zaburzeń odżywiania (Chan & Chiu, 2022). Jak wskazywali Scharmer i współpracownicy (Scharmer et al., 2020), osoby o wysokiej nietolerancji na niepewność były szczególnie narażone na rozwój zaburzeń odżywiania w czasie pandemii.

W czasie pandemii miejsca pracy musiały dokonać znaczących zmian w bardzo krótkim czasie – wiele firm przeszło na pracę zdalną, korzystając z internetowych platform komunikacyjnych, poczty elektronicznej i intranetu (Sanders et al., 2020). Wielu pracowników, zwłaszcza w branży gastronomicznej i hotelarskiej (Yu et al., 2021), zostało zmuszonych do odejścia z pracy lub zaprzestania pracy, a tam, gdzie było to możliwe, pracownicy wykonywali swoje zadania w warunkach domowych (Kniffin et al., 2021). Według danych Światowej Organizacji Zdrowia (2022) w połowie firm na świecie około 80% pracowników podczas pandemii pracowało z domu. Sytuacja ta była źródłem nowych trudności i wyzwań dla menedżerów, co niewątpliwie wpływało na ich samopoczucie. Wprowadzenie zmian w organizacjach i nadzór nad pracownikami wykonującymi obowiązki w trybie "home office" były niewątpliwie czynnikami, które oprócz tradycyjnych obowiązków, zwiększyły obciążenie pracą menedżerów (Stoker et al., 2022; Kirchner et al., 2021; Carnevale & Hatak, 2020; Teodorovicz et al., 2022).

Niższy poziom psychofizycznego dobrostanu wśród menedżerów, jeszcze przed pandemią, wiązał się zwykle z nadmiarem stresu ze względu na obowiązki i wymagania związane z wykonywaniem obowiązków (Asplund et al., 2018; Cocker et al., 2013; Zeike et al., 2019). Stres doświadczany przez menedżerów wykracza daleko poza jednostkę i wpływa również na innych członków społeczności zawodowej. Stres jako fizyczna i emocjonalna reakcja na brak równowagi między pracą a życiem prywatnym jest psychospołecznym czynnikiem pracy, ma skutki zarówno psychologiczne, jak i fizyczne, a utrzymujący się, trudny do zniesienia stres może skutkować zaburzeniami lękowymi, wypaleniem zawodowym, czy nawet depresją (Chesnut et al., 2021). To właśnie zaburzenia lękowe mogą powodować ostre skutki fizjologiczne w organizmie, takie jak przyspieszenie akcji serca i ciśnienia krwi, co może prowadzić do konsekwencji zdrowotnych w przyszłości, w tym zwiększonego ryzyka wielu chorób niezakaźnych (Huang et al., 2013). W związku z dynamicznym przyspieszeniem rozwoju technologii na świecie i związanym z tym pojawieniem się wielu nowych, różnorodnych stresorów, stres w pracy stał się problemem zdrowia publicznego (Thoits, 2010), stając się tym samym jednym z najpoważniejszych wyzwań w zakresie bezpieczeństwa i higieny pracy. Kwestie te mają istotny wpływ zarówno na zdrowie pracowników, jak i na organizacje, czy nawet gospodarkę kraju. Szczególnie stanowiska kierownicze narażone są w pracy na liczne stresory, co czyni je jednymi z najbardziej wymagających odporności psychicznej zawodów.

Pandemia Covid-19 jako ostry stresor pozaorganizacyjny różni się od chronicznych stresorów w miejscu pracy, takich jak przeciążenie rolą czy konflikt między życiem zawodowym a prywatnym (Biggs et al., 2014). Z jednej strony ostre stresory mogą powodować traumy i destabilizować pracę jednostki na dłuższy okres; z drugiej strony stanowią katalizatory pozytywnej adaptacji i wzrostu,

czyli odporności. Indywidualna odporność na katastrofy implikuje szereg pozytywnych, ale niestety w większości negatywnych reakcji lękowych na takie wydarzenia jak pandemia (Fisher et al., 2019).

Nie jest zaskakujące, że pandemia przyczyniła się do wzrostu stresu zawodowego (Choi et al., 2022). Ta bezprecedensowa sytuacja spowodowała nagłe zakłócenie codziennych zajęć, czemu towarzyszyła niepewność i lęki związane zarówno z pandemią, jak i organizacją zawodową i rodzinną w trakcie i po okresie izolacji społecznej. Stres wywołany kryzysem związanym z koronawirusem może narazić indywidualne zasoby pracowników na dodatkowe ryzyko. Ta utrata zasobów może następnie zmniejszyć zdolność pracowników do reagowania na wymagania zawodowe i stresory, wpływając w ten sposób na ich wydajność w pracy (Kelloway & Barling, 2010; Westman et al., 2004).

Menedżerowie stanowią grupę zawodową, która była szczególnie bezbronna na skutki pandemii COVID-19. Poczucie realnego zagrożenia dla ich zdrowia, znaczny niepokój związany z pracą i potrzebę nagłej reorganizacji miejsce pracy podwładnych mogło być dla tej grupy źródłem znacznego niepokoju, oprócz bardziej typowych wymagań roli menedżera. Stanowisko kierownicze kojarzone jest z utrzymaniem wysokich standardów wyglądu, diety, sprawności fizycznej i umiejętności społecznych. Ciągła presja i oczekiwania społeczne mogą poważnie zaszkodzić menadżerom w odniesieniu do poczucia własnej wartości.

WYKAZ PUBLIKACJI WCHODZĄCYCH W SKŁAD ROZPRAWY DOKTORSKIEJ

Prezentowana rozprawa doktorska pt. "Rola aktywności fizycznej i diety w radzeniu sobie ze stresem menagera w czasie pandemii" składa się z serii trzech artykułów o łącznej punktacji Impact Factor 6,700. Wszystkie publikacje umieszczone są w czasopismach wymienionych na liście Ministerstwa Edukacji i Nauki o łącznej wartości punktowej równej 230:

- Hryniewicz, A., Gmiąt, A., Jaroch-Lidzbarska, M., & Lipowski, M. (2023). Physical activity in managing stress among managers during the COVID-19 pandemic – A systematic review. *Baltic Journal of Health and Physical Activity*, 15(2). <u>https://doi.org/10.29359/BJHPA.15.2.02</u> punktacja IF: 0,800; punktacja MEiN: 70
- Hryniewicz, A., Wilczyńska, D., Krokosz, D., Hryniewicz, K., & Lipowski, M. (2023). Wellbeing of high-level managers during the pandemic: the role of fear of negative appearance, anxiety, and eating behaviors. *International Journal of Environmental Research and Public Health*, 20(1), 637. <u>https://doi.org/10.3390/ijerph20010637</u>

punktacja MEiN: 20 (w momencie opublikowania punktacja IF: 4,614; punktacja MEiN: 140)

 Wilczyńska, D., Hryniewicz, A., Jaroch-Lidzbarska, M., Hryniewicz, K., & Lipowski, M. (2023). Gender and work experience as moderators of relations between management level, physical activity, eating attitudes, and social skills of managers during the COVID-19 pandemic. *Nutrients, 15*(19), 4234. <u>https://doi.org/10.3390/nu15194234</u>

punktacja IF: 5,900; punktacja MEiN: 140

PROJEKT BADAWCZY

Wśród różnorodnych strategii przeciwdziałania zaburzeniom lękowym wiele badań sugeruje zwiększenie aktywności fizycznej i włączenie zdrowych nawyków żywieniowych do codziennej rutyny (Donaldson-Feilder et al., 2018). Ćwiczenia fizyczne od dawna uznawane są za predyktor zdrowego stylu życia i jeden ze składników odporności. Badania na całym świecie wykazały negatywny wpływ ograniczeń zdrowotnych związanych z izolacją na ćwiczenia fizyczne w związku z COVID-19, głównie w wyniku strategii pozostania w domu (Bennett et al., 2021). Natomiast wraz ze wzrostem aktywności fizycznej i zdrowymi nawykami żywieniowych następowała poprawa samopoczucia, zaś siedzący tryb życia korelował z pogorszeniem psychofizycznego dobrostanu (Ezzatvar et al., 2022; Morres et al., 2021). Z badań wynika, że dorośli, którzy w trakcie pandemii utrzymywali wysoki i umiarkowany poziom sprawności fizyczne, znacznie łagodniej przechodzili zarażenie się COVID-19, w porównaniu do osób o niskim poziomem aktywności (Ezzatvar et al., 2022; Steenkamp et al., 2022). Jako że aktywność fizyczna wiąże się z zachowaniami żywieniowymi, warto badać również potencjalne zaburzenia odżywiania. Koncentracja na tym aspekcie badań koreluje z rozumieniem dobrostanu menadżerów, podkreślając złożoność powiązania pomiędzy aktywnością fizyczną, preferencjami żywieniowymi i zdrowiem psychicznym. Przy analizach wpływu zachowań żywieniowych na samopoczucie w czasie pandemii, wiele wskazywało, że menadżerowie wykazywali obniżony nastrój, niewystarczający poziom aktywności fizycznej i kiepskie wyniki w zakresie zdrowego odżywiania. Skoro wcześniejsze badania naukowe nie przyniosły spójnych teorii na temat tego, jak menadżerowie reagowali na sytuację pandemii, moje badania mają charakter eksploracyjny. Interesujące dla mnie badawczo było, czy takie czynniki jak poziom zarządzania i dotychczasowe doświadczenie menadżerskie korelują płeć, z zaangażowaniem w aktywność fizyczną i dbałość o prawidłowe nawyki żywieniowe?

Menedżerowie to grupa zawodowa, która była szczególnie narażona na skutki pandemii COVID-19. Istotnymi źródłami lęku dla tej grupy były odczucia związane z zagrożeniami zdrowotnymi, stres związany z pracą oraz konieczność reorganizacji miejsc pracy dla podwładnych Liczne badania (Novita et al., 2022; Wang et al., 2022) wskazują na istotny związek między lękiem a konsekwencjami dla zdrowia psychicznego, zwłaszcza w postaci zaburzeń odżywiania i negatywnych postaw wobec własnego wyglądu. Czynniki te, oprócz znaczącego wpływu na samopoczucie, są bezpośrednio związane ze zdrowym stylem życia. Należy również podkreślić, że menedżerowie często mogą być wzorem do naśladowania dla pracowników, zwłaszcza w zakresie zdrowego stylu życia (Kranabetter & Niessen, 2017).

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Stąd też zainteresowania badawcze skierowane były również na sprawdzenie, w jaki sposób lęk dotyczący pandemii COVID-19 jest skorelowany z zaburzeniami odżywiania i oceną obrazu siebie oraz jak te czynniki są powiązane z poczuciem dobrostanu menedżerów?

W związku z zainteresowaniami badawczymi zbadałam 354 menadżerów (222 kobiety, 126 mężczyzn, oraz 6 osób nie identyfikowało się z żadną z ww. płci). Respondenci zajmowali stanowiska kierownicze średnio 12,33 lat (SD = 8,65). Większość respondentów (58%) stanowili menedżerowie najwyższego szczebla, 25% stanowili przedstawiciele średniego szczebla, a 17% to menedżerowie liniowi. Każdy z badanych zarządzał co najmniej 10-osobową grupą pracowników. Średni wiek uczestników wynosił M = 48,14 (SD = 9,69).

Narzędziami wykorzystanymi w badaniach były wystandaryzowane narzędzia:

- Kwestionariusz Celów Aktywności Fizycznej (KCAF) autorstwa Lipowskiego i Zaleskiego (2015) służy do badania motywacyjnej funkcji celu aktywność fizycznej. Aktywność fizyczna (AF) rozumiana jest jako zajęcia rekreacji ruchowej czy sportowe, a więc te, które wymagają wysiłku fizycznego i są realizowane w czasie wolnym. W KCAF znajdują się pytania, dzięki którym można kontrolować takie zmienne jak różnorodność form, objętość, częstotliwość AF i zmienne socjodemograficzne. Badany odpowiada również na pytania dotyczące uprawiania przez niego sportu wyczynowego (zarówno aktualnie, jak i w przeszłości) oraz jego stosunku do biernego zaangażowania w sport (np. jako kibic). Przy dwunastu celach podana jest skala Likherta (1-5), a osoba badana proszona jest o to, by określiła w jakim stopniu poniższe cele uprawiania AF są dla niej ważne. Kolejna część dotyczy motywacyjnej funkcji celu AF. Na bazie analizy czynnikowej (α Cronbacha = 0,78) i dopasowania poszczególnych itemów pod kontem teorii motywacyjnej funkcji celu, wyróżnione zostały następujące skale: 1) wartość motywacyjna (siła, z jaką cele wpływają na podejmowanie przez jednostkę działania), 2) organizacja czasu (poziom skoncentrowania na planowaniu, organizowaniu i podporządkowaniu czasu dla AF), 3) wytrwałość w działaniu (skuteczność i trwałość działania oraz radzenie sobie z przeciwnościami), 4) konflikt motywacyjny (poziom sprzeczności: cele PA vs. inne cele). Poza tymi wymiarami test bada również wielowymiarowość celów. Wyniki surowe przeliczane są na wartości stenowe.
- Eating Attitudes Test (EAT-26) jest jednym z najpopularniejszych testów zaburzeń odżywiania. Autorami narzędzia są Garner, Olmsted, Bohr i Garfinkel (Garner et al., 2009). Autorami polskiej standaryzacji narzędzia są Rogoza, Brytek-Matera i Garner (Rogoza et al., 2016). Jest to test używany jako narzędzie przesiewowe w przypadkach podejrzenia zaburzeń odżywiania. EAT-26 został stworzony do używania przez profesjonalistów, nauczycieli, trenerów oraz innych osób chcących sprawdzić czy w danym przypadku występuje ryzyko zaburzeń odżywiania. EAT-26

składa się z dwóch części. Pierwsza to 26 stwierdzeń zawierających zachowania i odczucia. Przy każdym ze stwierdzeń respondent określa częstość występowania danego zachowania lub myśli. Druga składa się z 4 pytań odnoszących się do ostatnich 6 miesięcy. Można w nim uzyskać od 0 do 78 punktów. Poza wynikiem globalnym istnieje także możliwość analizowania trzech domen EAT-26, takich jak: (1) zachowania dietetyczne/dieta (dieting), (2) bulimia i zaabsorbowanie jedzeniem (bulimia & food preoccupation), (3) kontrola oralna (oral control).

- Skale Dobrostanu Psychologicznego (Psychological Well-Being Scales, PWBS), to kwestionariusz zaprojektowany przez Ryff (2014) do pomiaru sześciu wymiarów dobrostanu w ujęciu eudajmonistycznym: samoakceptacji, pozytywnych relacji z innymi ludźmi, autonomii, panowania nad otoczeniem, celu życiowego oraz osobistego rozwoju. Ten przetłumaczony na kilkadziesiąt języków kwestionariusz jest powszechnie stosowanym narzędziem do pomiaru dobrostanu. Karaś i Cieciuch (2017) wykonali polską adaptację kwestionariusza PWBS w dwóch wersjach: pełnej (84-itemowej) oraz skróconej (18-itemowej), w serii czterech badań w łącznej grupie 2035 osób w wieku od 13 do 78 lat. Otrzymane wyniki potwierdzają rzetelność pełnej wersji kwestionariusza PWBS oraz 6-czynnikową strukturę dobrostanu. Potwierdzona została również trafność kryterialna zastosowanego kwestionariusza, odzwierciedlona w korelacji z zastosowanymi narzędziami walidacyjnymi.
- Skala Lęku Przed Negatywnym Wyglądem (Fear of Negative Appearance Evaluation Scale, FNAES) została stworzona przez Lundgrena, Andersona i Thompson (Lundgren et al., 2004). Skala została przetłumaczona na język polski (Novita et al., 2022). Skala posiada bardzo dobre właściwości psychometryczne (alfa Cronbacha = 0,95) i bada poziom obaw związanych z obrazem ciała (np. "Martwię się tym, co inni ludzie pomyślą o moim wyglądzie"; "Obawiam się, że inni ludzie zauważą moje wady fizyczne"). Badani odpowiadają na sześć pytań dotyczących problemów z negatywnym wyglądem na pięciostopniowej skali Likerta (1 – wcale; 5 – skrajnie).
- Skala Lęku przed Coronavirusem (Coronavirus Anxiety Scale, CAS) została opracowana w 2020 roku (Lee, 2020). Skala mierzy poziom lęku podczas pandemii, lęk przed koronawirusem. Opracowania polskiej wersji dokonali opracowana Skalski, Uram, Dobrakowski i Kwiatkowska (Skalski et al., 2021). Kwestionariusz składa się z pięciu pozycji (np. "Czułem paraliżujący niepokój, gdy myślałem lub otrzymywałem informacje na temat koronawirusa"), na które uczestnicy badania odpowiadają na pięciostopniowej skali Likerta (1 wcale; 5 prawie codziennie przez ostatnie dwa miesiące). Wyższe wyniki CAS wskazują na dysfunkcyjny lęk związany z COVID-19. Alfa Cronbacha (polska wersja tej skali) wyniosła 0,80.

GŁÓWNE WYNIKI I WYPŁYWAJĄCE Z NICH WNIOSKI

Hryniewicz, A., Gmiąt, A., Jaroch-Lidzbarska, M., & Lipowski, M. (2023). Physical activity in managing stress among managers during the COVID-19 pandemic – A systematic review. *Baltic Journal of Health and Physical Activity*, *15*(2). <u>https://doi.org/10.29359/BJHPA.15.2.02</u>

W czasie pandemii Covid-19 menedżerowie doświadczyli dodatkowego stresu związanego z wzięciem odpowiedzialności za pracowników w momencie ogólnoświatowego kryzysu. Utrzymanie wysokiego poziomu aktywności fizycznej w tej konkretnej grupie prawdopodobnie mogło przyczynić się do utrzymania zarówno umiejętności zarządzania, jak i stanu zdrowia na wysokim wymaganym poziomie. Celem niniejszego przeglądu była weryfikacja zakresu zainteresowań naukowych tematyką aktywności fizycznej wśród menedżerów jako strategii radzenia sobie ze stresem w czasie pandemii. Do przeglądu systematycznego wybranych zostało sześć badań (dwa z nich mają charakter opisowy jakościowy, trzy przekrojowy, a jedno stanowi raport). Kryteria włączenia były następujące: badania skupiające się na stresie, aktywności fizycznej i menedżerach; badania przeprowadzone w latach epidemii COVID-19 dostępne w pełnym tekście. Kryteria wykluczenia zastosowano w badaniach, w których nie określono grupy menedżerów. Z przeglądu wynika, że częstotliwość ćwiczeń była niewystarczająca i nieadekwatna do specyficznych potrzeb menedżerów, szczególnie w wymagającym czasie pandemii COVID-19. Menedżerowie wykazali się dużą świadomością roli sportu w obniżaniu lęku i poprawie stanu zdrowia, szczególnie w okresie pandemii. Nie przełożyło się to jednak na częstszą aktywność fizyczną w tej grupie. Istnieje duże prawdopodobieństwo, że dalsza konfrontacja liderów z ich rzeczywistymi nawykami związanymi z aktywnością fizyczną wpłynęłaby na ich refleksję na ten temat i zapoczątkowała zmianę.

Hryniewicz, A., Wilczyńska, D., Krokosz, D., Hryniewicz, K., & Lipowski, M. (2023). Wellbeing of high-level managers during the pandemic: the role of fear of negative appearance, anxiety, and eating behaviors. *International Journal of Environmental Research and Public Health*, 20(1), 637. <u>https://doi.org/10.3390/ijerph20010637</u>

W przeprowadzonych badaniach sprawdzaliśmy, czy lęk dotyczący własnego o swoje zdrowia (spowodowany pandemią, zaburzeniami odżywiania się postawy lub obawy dotyczące obrazu własnego ciała) ma negatywny związek z dobrostanem psychofizycznym. Lęk przed negatywnym wyglądem wpływał na samopoczucie badanych menedżerów. W tej zależności w znacznym stopniu moderatorem były zachowania żywieniowe. Wnioski, które wyciągnęliśmy z badań wskazują, że poziom dobrostanu zależał od pozytywnego obrazu ciała menedżerów, ale tylko wtedy, gdy menadżerowie stosowali zdrową dietę i prawidłowe postawy żywieniowe. Choć poziom dobrostanu

menedżerów był wysoki, warto temat eksplorować w kierunku ich osobistego rozwoju, w który wpisana jest na stałe aktywność fizyczna, co może przekładać się również na jakość życia ich współpracowników i organizacji. Jednak temat dobrostanu menedżerów wymaga dalszych badań; na przykład, biorąc pod uwagę różne moderatory, takich jak doświadczenie zawodowe, płeć i wiek. Co więcej, warto przeprowadzić badania eksperymentalne sprawdzające skuteczność różnych interwencji dla zdrowia fizycznego i psychicznego tej grupy.

Wilczyńska, D., **Hryniewicz, A.**, Jaroch-Lidzbarska, M., Hryniewicz, K., & Lipowski, M. (2023). Gender and work experience as moderators of relations between management level, physical activity, eating attitudes, and social skills of managers during the COVID-19 pandemic. *Nutrients, 15*(19), 4234. <u>https://doi.org/10.3390/nu15194234</u>

W tych badaniach analizowaliśmy, czy płeć, doświadczenie i poziom zarządzania miały znaczenie dla zachowań zdrowotnych menadżerów (postawy żywieniowe i aktywność fizyczna) lub na umiejętności "miękkie" podczas pandemii COVID-19. Wyniki wykazały, że w porównaniu z kobietami mężczyźni charakteryzowali się niższymi poziomami we wszystkich trzech skalach testu EAT-26: Bulimia i zaabsorbowanie jedzeniem, Kontrola oralna i Dieta. Z kolei respondenci płci męskiej zajmujący wysokie stanowiska kierownicze charakteryzowali się wysokim poziomem zachowań żywieniowych. Analiza ta dostarcza spostrzeżeń, które mogą pomóc w poprawie jakości życia pracowników; jednak potrzebne są dalsze badania w celu zbadania bezpośredniego wpływu menedżerów na pracowników w różnych branżach.

PODSUMOWANIE

Dotychczasowe badania potwierdziły, że menedżerowie w różny sposób mogą wpływać na zdrowie psychiczne pracowników w miejscu pracy oraz w na ich pracę w trybie "home office". Oddziałują między innymi na przeciążenie pracą, czy swobodę podejmowania decyzji, a także pomagając pracownikom radzić sobie ze stresem związanym z pracą (Kelloway & Barling, 2010) Arnold, 2017). Powyższe zjawiska świadczą o konieczności zwiększania wiedzy o problemie w celu podjęcia skutecznych działań zapobiegawczych. W czasach, gdy ludzie są mniej aktywni, znaczenie badań nad pozytywnym wpływem ćwiczeń na radzenie sobie ze stresem i zdrowie psychiczne jest niezwykle istotne.

Istotną motywacja do podejmowania aktywności fizycznej jest wzrost wytrzymałości i koncentracji psychicznej (Lovelace et al., 2007; Neck & Cooper, 2000). Co więcej, liderzy, którzy regularnie ćwiczą, mogą na tym zyskać dzięki natychmiastowym efektom powysiłkowym, takim jak poprawa przetwarzania informacji, rozpoznawanie błędów, funkcje wykonawcze i podejmowanie decyzji (Calderwood et al., 2021). Pomiędzy aktywnością fizyczną, zwłaszcza o umiarkowanej intensywności, występuje dodatnia korelacja zarówno z postrzeganiem zdrowia, jak i nastrojem, co ma pozytywne oddziaływanie na dobre samopoczucie poprzez poprawę doświadczeń związanych z rekonwalescencją (Ginoux et al., 2021; Reigal et al., 2021). Istnieją dowody, że regularna aktywność fizyczna może wiązać się ze zmniejszonym prawdopodobieństwem wystąpienia poważnych skutków Covid-19. Podkreśla się działanie ochronne odpowiedniej aktywności fizycznej jako wartościowej strategii zdrowia publicznego oferującej potencjał korzyści w zmniejszaniu ryzyka ciężkich przypadków Covid-19. W szczególności osoby, które regularnie uczestniczą w aktywności fizycznej, wykazują niższy wskaźnik hospitalizacji, ciężki chorób i ofiar śmiertelnych związanych z Covid-19 w porównaniu do osób mniej aktywnych.

Co więcej, to właśnie brak aktywności fizycznej może być stresorem sam w sobie, a to z kolei może przyczyniać się do pojawiania zaburzeń lękowych. Z badań wynika, że większa aktywność fizyczna wiąże się z lepszym samopoczuciem, jakością życia, a także mniejszym stresem, objawami depresyjnymi i lękiem. Ponadto badania dostarczają interesujących dowodów na to, że umiarkowany poziom ćwiczeń może złagodzić nadużycia ze strony przełożonych wobec podwładnych, a tym samym mieć pozytywny wpływ na dobrostan w pracy (Burton et al., 2012). Co więcej, wraz ze wzrostem świadomości zdrowego stylu życia, utrzymanie dobrej kondycji fizycznej należy do wizerunku współczesnego menedżera.

Od początku XX wieku indywidualne cechy przywódców były systematycznie poddawane badaniom w celu wyjaśnienia czynników wyróżniających wzorce menedżera i pomóc menedżerom w skuteczniejszym kierowaniu (Fiedler, 1971). Menedżer powinien być nie tylko zorientowany na zadania i zarządzanie, ale powinien także koncentrować się na podwładnych, "zarażać" pasją, by pracownicy czuli się częścią zespołu. Dlatego też w moich badaniach podkreślam istotę "miękkich" umiejętnościach menedżerów. Kompetencje miękkie są zatem powiązane z czynnikami kluczowymi dla relacji z innymi ludźmi, takimi jak cechy osobowości, kompetencje społeczne, komunikacja, język, nawyki osobiste, umiejętności interpersonalne, zarządzanie ludźmi i przywództwo (Cimatti, 2016). Jakość funkcjonowania organizacji w istotnym stopniu zależy właśnie od kompetencji miękkich posiadanych przez menadżerów na każdym szczeblu zarządzania.

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STRESZCZENIE

Wprowadzenie

Pandemia Covid-19 spowodowała bezprecedensowe zmiany we współczesnym świecie, znacząco wpływając na pracę przedsiębiorstw, a zwłaszcza kadry menedżerskiej. Zatrudnienie na stanowisku kierowniczym często wiąże się z utrzymaniem wysokich standardów w wielu aspektach życia. Wielu liderów zwraca uwagę na swoją aktywność fizyczną, nawyki żywieniowe i umiejętności społeczne. Wybuch pandemii COVID-19 przyniósł dodatkowe trudności w wymagającej pracy zarządzania ludźmi i zmusił menedżerów do wprowadzenia wielu zmian w codziennym funkcjonowaniu w pracy.

W czasie pandemii Covid-19 menedżerowie doświadczyli dodatkowego stresu związanego z wzięciem odpowiedzialności za pracowników w momencie ogólnoświatowego kryzysu. Prawdopodobnie mogło się do tego przyczynić utrzymanie wysokiego poziomu aktywności fizycznej w tej konkretnej grupie utrzymanie zarówno umiejętności zarządzania, jak i stanu zdrowia na wymaganym wysokim poziomie.

Głównym **celem badań** było ustalenie czy płeć, doświadczenie i poziom zarządzania mają znaczenie dla zachowań zdrowotnych menadżerów (postawy żywieniowe i aktywność fizyczna) oraz na umiejętności miękkie w radzeniu sobie ze stresem podczas pandemii COVID-19. W badaniach analizowano, czy obawa o własne zdrowie (wywołana pandemią, zaburzeniami postaw żywieniowych czy obawą o wizerunek własnego ciała) ma negatywny związek z dobrostanem menedżerów.

Osoby badane i narzędzia badawcze

Badanie zostało przeprowadzone w czasie pandemii COVID-19 na próbie 354 menedżerów z różnych firm (n = 222 kobiety, n = 126 mężczyzn i 6 osób, które nie podały tożsamości płciowej) o różnym poziomie doświadczenia i odpowiedzialności menedżerskiej.

Zastosowano następujące narzędzia psychometryczne: 1) Kwestionariusz Celów Aktywności Fizycznej (KCAF), który służy do badania motywacyjnej funkcji celu aktywność fizycznej, 2) Eating Attitudes Test (EAT-26) – test do badania zaburzeń odżywiania, 3) Skale Dobrostanu Psychologicznego (Psychological Well-Being Scales, PWBS) – kwestionariusz zaprojektowany do pomiaru psychofizycznego dobrostanu, 4) Skala Lęku Przed Negatywnym Wyglądem (Fear of Negative Appearance Evaluation Scale, FNAES) – bada poziom obaw związanych z obrazem ciała, 5) Skala Lęku przed Coronavirusem (Coronavirus Anxiety Scale, CAS) – bada objawy lęku przed skutkami pandemii.

Główne wyniki i wnioski

Poziom dobrostanu zależał od pozytywnego obrazu ciała menedżerów, ale tylko wtedy, gdy pośredniczyła w tym zdrowa dieta i postawy żywieniowe. Lęk przed negatywnym wyglądem wpływał na samopoczucie badanych menedżerów. Jednakże w tej zależności pośredniczyła dieta.

Choć poziom dobrostanu menedżerów był wysoki, warto dalej badać, w jaki sposób mogą oni prosperować i rozwijać się w życiu pracy, co może również przełożyć się na jakość życia ich współpracowników i firm. Jednak temat dobrostanu menedżerów wymaga dalszych badań; na przykład, biorąc pod uwagę różnych moderatorów, takich jak doświadczenie zawodowe, płeć i wiek. Ponadto można przeprowadzić badania eksperymentalne sprawdzające skuteczność różnych interwencji na zdrowie fizyczne i psychiczne menedżerów.

Menedżerowie wykazali się dużą świadomością roli aktywności fizycznej w obniżaniu stresu i poprawie stanu zdrowia, szczególnie w okresie pandemii. Nie przełożyło się to jednak na częstszą aktywność fizyczną w tej grupie. Istnieje duże prawdopodobieństwo, że dalsza konfrontacja liderów z ich rzeczywistymi nawykami związanymi z aktywnością fizyczną wpłynęłaby na ich refleksję na ten temat i zapoczątkowała zmianę.

SUMMARY

Background

The COVID-19 pandemic has caused unprecedented changes in the contemporary world, significantly affecting the work of companies, especially management staff. Being employed in a managerial position is often associated with maintaining high standards in many aspects of life. Many leaders pay attention to their physical activity, eating habits, and social skills. The onset of the COVID-19 pandemic brought additional difficulties to the already demanding job of managing people and forced managers to make many changes to their daily functioning at work.

During the COVID-19 pandemic managers experienced additional stress connected with taking responsibility for workers at the time of a worldwide crisis. Maintaining a high level of physical activity in this specific group possibly could have contributed to keeping both management skills and health condition at a high required standard.

The **main goal** of study was to establish whether Gender, Experience, and Management Level influenced respondents' healthy behaviors (eating attitudes and physical activity) and soft skills in coping with stress during the COVID-19 pandemic. The research analyzed whether concern about one's own health (caused by the pandemic, eating disorder disorders or concern about one's own body image) has a negative relationship with the well-being of managers.

Materials & Metods

This study was carried out during the COVID-19 pandemic with a sample of 354 managers from a variety of companies (n = 222 women, n = 126 men, and 6 people with no gender identity) with varying levels of experience and managerial responsibility.

The following psychometric tools were used: 1) Physical Activity Objectives Questionnaire (PAOQ), which is used to examine the motivational function of the goal of physical activity, 2) Eating Attitudes Test (EAT-26) – a test for testing eating disorders, 3) Psychological Wellness Scales -Being Scales (PWBS) - a questionnaire designed to measure psychophysical well-being, 4) Fear of Negative Appearance Evaluation Scale (FNAES) – examines the level of concerns related to body image, 5) Coronavirus Anxiety Scale (CAS) – examines the symptoms of fear of the effects of the pandemic.

Main results & Conclusions

The well-being level depended on the managers' positive body images, but only when mediated by healthy dieting and eating attitudes. Fear of negative appearance influenced the well-being of the studied managers. However, this relation was mediated by dieting. While the well-being level of managers was high, it is worth further exploring how they can flourish and develop in life and work, which can also transfer to the quality of life of their co-workers and companies. However, the subject of the well-being of managers warrants more research; for example, by considering different moderators, such as job experience, gender, and age. Moreover, experimental studies examining the effectiveness of different interventions for the physical and mental health of managers could be worth investigating.

The managers were highly aware of the role of physical activity in lowering stress and improving health, especially during the pandemic. However, this has not resulted in more frequent physical activity among this group. There is a high probability that further confronting the leaders with their real physical activity daily habits would have influenced their reflection about the subject and initiated change.



OŚWIADCZENIE WSPÓŁAUTORÓW PUBLIKACJI

Hryniewicz, A, Gmiąt, A, Jaroch-Lidzbarska, M, & Lipowski, M. (2023). Physical activity in managing stress among managers during the COVID-19 pandemic – A systematic review. *Baltic Journal of Health and Physical Activity*, *15*(2). https://doi.org/10.29359/BJHPA.15.2.02

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OŚWIADCZENIE WSPÓŁAUTORÓW PUBLIKACJI

Hryniewicz, A., Wilczyńska, D., Krokosz, D., Hryniewicz, K., & Lipowski, M. (2023). Well-being of high-level managers during the pandemic: the role of fear of negative appearance, anxiety, and eating behaviors. *International Journal of Environmental Research and Public Health, 20*(1), 637. https://www.mdpi.com/1660-4601/20/1/637

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Wilczyńska, D., Hryniewicz, A., Jaroch-Lidzbarska, M., Hryniewicz, K., & Lipowski, M. (2023). Gender and Work Experience as Moderators of Relations between Management Level, Physical Activity, Eating Attitudes, and Social Skills of Managers during the COVID-19 Pandemic. *Nutrients*, *15*(19), 4234. https://doi.org/10.3390/nu15194234

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 $\mathbf{E} - \text{przygotowanie publikacji}, \mathbf{F} - \text{opracowanie piśmiennictwa}, \mathbf{G} - \text{pozyskanie funduszy}$

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Physical activity in managing stress among managers during the COVID-19 pandemic – A systematic review

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Physical activity in managing stress among managers during the COVID-19 pandemic – A systematic review

Abstract

Introduction: During the COVID-19 pandemic managers experienced additional stress connected with taking responsibility for workers at the time of a worldwide crisis. Maintaining a high level of physical activity in this specific group possibly could have contributed to keeping both management skills and health condition at a high required standard. The purpose of this review is to verify the range of scientific interest on the subject of physical activity among managers as a stress coping strategy during the pandemic. Materials and Methods: For this systematic review six studies were chosen (two of them are qualitative descriptive, three are cross-sectional, one is a report). The inclusion criteria were as follows: studies focusing on stress, physical activity and managers; studies conducted in the years of COVID-19 epidemic available in full-text. The exclusion criteria applied to studies where the managers' group was not specified. The number of study participants ranged from 20 to 255. Results: The frequency of exercise was insufficient and unsuitable to the managers' specific needs, especially during the demanding time of the COVID-19 pandemic. Conclusions: The managers were highly aware of the role of sport in lowering stress and improving health, especially during the pandemic. However, this has not resulted in more frequent physical activity among this group. There is a high probability that further confronting the leaders with their real physical activity daily habits would have influenced their reflection about the subject and initiated change.

Keywords

managers, exercise, COVID-19, stress management, physical activity

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Review Physical activity in managing stress among managers during the COVID-19 pandemic – A systematic review

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Abstract: Introduction: During the COVID-19 pandemic managers experienced additional stress connected with taking responsibility for workers at the time of a worldwide crisis. Maintaining a high level of physical activity in this specific group possibly could have contributed to keeping both management skills and health condition at a high required standard. The purpose of this review is to verify the range of scientific interest on the subject of physical activity among managers as a stress coping strategy during the pandemic. Materials and Methods: For this systematic review six studies were chosen (two of them are qualitative descriptive, three are cross-sectional, one is a report). The inclusion criteria were as follows: studies focusing on stress, physical activity and managers; studies conducted in the years of COVID-19 epidemic available in full-text. The exclusion criteria applied to studies where the managers' group was not specified. The number of study participants ranged from 20 to 255. Results: The frequency of exercise was insufficient and unsuitable to the managers' specific needs, especially during the demanding time of the COVID-19 pandemic. Conclusions: The managers were highly aware of the role of sport in lowering stress and improving health, especially during the pandemic. However, this has not resulted in more frequent physical activity among this group. There is a high probability that further confronting the leaders with their real physical activity daily habits would have influenced their reflection about the subject and initiated change.

Keywords: managers, exercise, COVID-19, stress management, physical activity.

1. Introduction

The ability to deal with stress is one of the key qualifications of people working in management positions. The stress experienced by managers goes far beyond the individual and affects other members of the working community. Work stress is present when the demands of work overcome humans' available resources and capabilities. Stress defined as a physical and emotional response to the work–life imbalance is a psychosocial factor of work that has both psychological and physical effects [1]. It can be especially harmful to mental and physical health when it is chronic or excessively intense. Indeed, persistent stress that is difficult to deal with may result in mental diseases characterized by symptoms related to anxiety and depression [2]. Psychological stress can cause acute physiological effects in the body, such as increased heart rate and blood pressure, which

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Copyright: © 2023 by Gdansk University of Physical Education and Sport. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC-BY-NC-ND) license (https://creativecommons.org/licenses/ by/4.0/). can lead to future health consequences, including an increased risk of many non-communicable diseases [3]. Currently, due to the rapid acceleration of the world's technology development and the related emergence of many new various stressors, stress at work has become a public health issue [4]. Work-related stress is one of the most serious challenges in the field of occupational health and safety. These issues have a significant impact both on employees' health and on national organizations and economies. Management positions, in particular, are exposed to numerous stressors at work, which makes them one of the most stressful occupations.

The COVID-19 pandemic as an acute extra organizational stressor differs from chronic workplace stressors, such as role overload or work–life conflict [5]. On the one hand, acute stressors can induce traumas and destabilize individuals and workplaces for an extended period; on the other hand, they constitute catalysts to positive adaptation and growth, in other words, resilience [6]. An individual disaster resilience implicates the range of positive and negative human reactions to heightened stress caused by a significant event [7,8]. Scholars have defined resilience as the ability to rebound from crises and to modify goals and behaviors to cope with changes in the environment, using a recovery trajectory [9]. Researchers have observed that even though people differ with their personal resources, stressor appraisals, and initial stress responses during exposure to a disaster, individual resilience trajectories tend to converge within their workplaces [10, 11]. This suggests that an organization may steer recovery or thriving trajectories by ensuring organizational-level resilience and thus contribute to its own survival-to-decline trajectory [12].

Among a variety of strategies to counteract stress, many studies suggest an increase in physical activity and an integration of healthy eating habits into the daily routine [13]. Physical exercises have long been recognized as a predictor of a healthy lifestyle as well as considered one of the components of resilience. Health benefits induced by regular physical activity are now well documented and their effects demonstrated, regardless of age and gender [14]. Various national and international organizations have provided physical activity recommendations across the lifespan. The overwhelming evidence indicates that a lack of exercise is associated with an onset of 40 chronic conditions/diseases and premature death [15]. Moreover, it is precisely the lack of physical activity that can be a stressor in itself. The studies suggested that higher physical activity is associated with better well-being, quality of life as well as lower stress, depressive symptoms and anxiety. Additionally, Burton et al. [16] provide interesting evidence that moderate levels of exercise can mitigate abuse by supervisors targeting their subordinates and thus have a positive effect on well-being at work. Moreover, with the growing awareness of a healthy lifestyle, one can get an impression that staying in good physical shape belongs to the image of a modern manager.

Since the COVID-19 pandemic, changes in lifestyle behaviors have occurred, causing disparities in exercises practice. Overall, studies around the world showed a negative impact on physical exercises during COVID-19 health restrictions of lockdown, mainly as a consequence of the stay-at-home strategies [17]. As suggested by reports from surveys conducted in many countries [18, 19], the lockdown likely resulted in disruptions of food-related practices and physical activity, as well as body weight changes and increased sed-entariness. It is not astonishing that the pandemic contributed to the growth of job stress [20]. This unprecedented situation resulted in a sudden disruption of daily routines, accompanied by insecurities and worries related both to the pandemic and to professional and familial organization during and after the lockdown. The stress caused by the coronavirus crisis can put workers' individual resources at risk. This loss of resources can then reduce workers' ability to respond to their work demands and stressors, thereby affecting their performance at work [21, 22].

The previous research has confirmed that managers positively or negatively affect employees' mental health in the workplace, by influencing exposure to psychosocial risk factors such as work overload or decision-making freedom, and by helping employees to cope with work-related stress [21, 23]. The above phenomena constitute evidence of the need to increase knowledge about the problem in order to take effective preventive actions. In times when people are less active, the significance of studies on the positive impact of exercise on managing stress and mental health is critical.

The aim of this article is to examine the state of current research and the interests of researchers around the world in the field of the relationship between physical activity in coping with stress among managers during the years of the pandemic. The resulting knowledge of extant evidence regarding physical activity in managing stress among managers from this review will help to define an agenda for future research on the topic — what is known and what warrants new research. In this review of recent literature, it was quite difficult to find any research on the topic of the managers' health habits and ways of stress management during pandemic. For this reason, the authors wanted to pay special attention to this neglected research topic.

2. Materials and Methods

2.1. Database Search

A systematic literature research was conducted from July to September 2022 using the Scopus, Cochrane Library, EBSCOhost, Web of Science, Google Scholar, ResearchGate and PubMed databases. Available research articles published between 2020–2022 were searched for using the following keywords: "manager" or "leader," or "leadership" or "director" or "leadership" or "CEO" and "exercise" or "physical activity" or "sport" and "diet" or "nutrition" and "stress" and "stress management" and "COVID-19" and "pandemic". The searches were conducted using single and combined terms. Articles were chosen according to their relevance to our research topic. The papers were published in the years 2020–2022, so they present the information on the COVID-19 pandemic years. Only articles published in English and Polish in peer-reviewed journals were considered for review.

Following the keywords given above, 382 publication matches were found. In the qualification process, six of them were isolated and thoroughly analyzed in the systematic review below.

2.2. Selection Process

The screening of the title, abstract and reference list of each study to locate potentially relevant studies was independently performed by the two authors (GA and MJ-L). Additionally, all authors reviewed the full version of the included papers in detail to identify articles that met the selection criteria.

2.3. Data Analysis. Inclusion and Exclusion Criteria

Considering the fact that there is not a large number of studies directly regarding the relationship between physical exercise and managers and COVID-19, we included all articles about stress, physical exercise and managers which were published in the years 2020–2022, so they present the most up-to-date information on the topic. The inclusion criteria were as follows: studies focusing on stress, physical activity and managers, studies conducted in the years of the COVID-19 epidemic and available in full-text. The exclusion criteria applied to studies where the managers group was not specified.

Database	Search code line of an article	Number of ex- tracted articles
PubMed	1. https://pubmed.ncbi.nlm.nih.gov/33362330/	3
	2. https://pubmed.ncbi.nlm.nih.gov/33305687/	
	3. https://pubmed.ncbi.nlm.nih.gov/32503308/	
Research- Gate	 https://www.researchgate.net/publication/358590614_ After_All_No_One_Is_Superhuman_Here_An_Analy- sis_of_the_Perceived_Effects_of_Managerial_Athleticism 	1
EBSCO- host	 https://web.p.ebscohost.com/abstract?direct=true&pro- file=ehost&scope=site&authtype=crawler&jrnl=21755361& AN=154807942&h=LQB2YT6tFhrk9%2fY2fPgs717c2d1dW cOqllvLLrif2QiXUq8WWQVomT7Go%2fsoflNbNk- FWfKIR%2b4Ka166JftGLWQ%3d%3d&crl=c&resultNs= AdminWebAuth&resultLocal=ErrCrlNotAuth&crlhashurl=login. aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite% 26authtype%3dcrawler%26jrnl%3d21755361%26AN%3d154807942 	1
Google Web search*	 https://think-tank.pl/przeciazony-jak-lider-podsumowanie- pierwszego-w-polsce-obiektywnego-badania-stresu-wsrod- polskich-menedzerow-podczas-pandemii/ 	1

Table 1. Summary of the selected articles with links.

**A report, as the only one, was found not in a scientific database.*

2.4. Data Items

To help in addressing our main aim, the recorded data are as follows: (a) study identification (authors, year and title); (b) study design; (c) sample characteristic of the participants; (d) measurement methods and (e) the main findings related to the purpose of this review.

3. Results

3.1. Study Characteristic

In our review of research articles published between 2020–2022 on the relationship between physical activity and stress among managers, through literature search, we detected similar articles focusing on physical activity and stress during pandemic among workers, but we only selected the studies which contained separated data on managers. Only six articles provided information in line with the purpose of this review. Two articles are qualitative descriptive study articles and three articles are cross-sectional studies. In addition one report research carried out by the company was included because it provided useful information for the present review, for instance, prevalence data of insufficient level of physical activity among the managers during pandemic. All articles were selected purposefully based on the objectives of the present review study. No article was found containing intervention studies on the effects of physical activity or exercise and stress among managers.

Two of the studies were from Europe (Finland, Poland), two from South America (Brazil, Mexico), one from Asia (India) and one from New Zealand. The number of study participants ranged from 20 to 255.

The impact factor for the magazines varied from 1.66 to 3.39. Two of the publications found in a journal had an impact factor smaller than 1.0 or none.

3.2 General Findings

In this study, the physical activity and stress management among managers during the years of COVID-19 pandemic was assessed. Four studies were found that were connected with the subject of physical activity used as a stress coping strategy which included uniquely the leaders' environment; in the two remaining studies, the managerial population represented only part of the investigated group. In three out of six articles, the age group of the researched population was similar and comprised leaders in early and middle adulthood.

In a cross-sectional study by Armenta-Hernandez et al. from 2020 [24], concerning effects of job content and physical activity on BMI among obese leaders of a Mexican manufacturing industry, 255 managers with a BMI >30, at the age of 31–40 years were involved; they were both men and women. The measurement methods encompassed the Job Content Questionnaire, Baecke's Short Physical Activity Questionnaire and the Sociodemographic Data Questionnaire. The main findings showed that both work stress and physical activity exerted observed direct effects on BMI reduction among obese managers. One can also find a correlation of all these factors with the quality of life, which may be important for resilience during a crisis such as a pandemic.

In case reports/qualitative descriptive study by Raisio et al. from 2021 [25], which focused on an analysis of the perceived effects of managerial athleticism, 20 physically active executive-level leaders participated (e.g., cabinet ministers and CEOs), 11 men and 9 women at the age of 43–64 years. They were examined with semi-structured reviews. The study revealed that the interviewees saw many good aspects of physical exercise, such as providing physical, affective, cognitive, and social resources. In addition, managers admitted the importance of physical activity not only for them-selves, but the impact of their practice on employees emerged. The study highlighted the role of balancing the harmonious and obsessive aspects of the relationship with exercising.

On the other hand, in 2021 Azevedo et al. did [26] a qualitative descriptive study with 44 managers of the Health Unit, 16 men and 28 women, interviewed individually. The results showed that stressors outweighed the discourse on coping strategies (words linked to the word stress), which demonstrates that coping mechanisms among managers are still incipient. Health services and medications, as well as leisure time, but not physical activity, were sought as strategies for coping with stress.

In 2022, Shaikh et al. [27] involved 203 people in their cross-sectional study, out of whom 178 (87.7%) were employees, 25 (12.3%) employers (managers); 132 men at the age of 29 ±12 were examined with a semi-structured "Knowledge, Attitude and Practice of Physical Activity Questionnaire". The study showed that though employers and employees have adequate knowledge and attitude, the practice of SB interventions and PA practices are found to be low in Indian workplaces. The study showed that though employers and employers and employees have adequate knowledge and attitude, the practice of sedentary behavior interventions and physical activity practices are found to be low in Indian workplaces and it have been any significant difference in attitudes among employees and employers.

In a 2021 cross-sectional study by Kuntz [12] focused on resilience in times of the COVID-19 pandemic, 61 workers from all over New Zealand from several sectors participated in May 2020. 17 of them were managers and 44 had non-managerial positions. The respondents stated that lack of leadership by example and poor support for wellbeing significantly contributed to their stress levels and difficulty coping with role demands during the lockdown. Almost 60 per cent of the interviewees across all sectors surveyed remarked on the importance of managerial support for wellbeing as stress management factors. De Nisau et al. [28] chose as their population study a representation of 40 leaders from the company BIG4, at the average age of 37, with average BMI of 24.1. They participated in direct measurement with the Bodyguard device and presented the results of stress measurement during a total of 500 days and nights during the COVID-19 pandemic. It is the first objective stress research conducted among the managers in Poland. Each examined manager participated in at least three days and nights of measurement with the device equipped with electrodes, which diagnosed the leaders twenty-four-hours and enabled collecting data about body functions with precision similar to clinical research. The purpose of the research was to learn how the managers were coping with stress level. The study results showed that 56% of the respondents presented an insufficient to keep fit or improve their fitness level. The study results showed that 56% of the respondents presented an insufficient level of undertaken physical activity, and only 14% of the managers presented a very good or extraordinary fitness level. 55% of the leaders claimed that their physical activity was adequate to bring them health benefits; however, the study showed that, actually, 44% of them were active enough to improve their health. The researchers claim that being in good physical shape is crucial for leadership because our fitness capacity and VO2max influence our ability to cope with stress. Below is the table containing the summary of studies presented in the article.

Table 2. Summary of the studies.

	Authors (years)	Study design	Population	Sample characteristics (n, sex, age)	Measurement methods	Main findings related to the purpose of this review
1	Armenta-Hernandez, O.D.; Maldonado-Macias, A.A.; Ortiz Solís, M.; Serrano-Rosa, M.Á.; Baez-López, Y.A.; Hernández-Arellano, J.L. (2020)	cross-sec- tional study	Managers from the Mexican industry, with a (BMI >30)	N = 255 age: 31–40 years, sex: men and women	 Job Content Questionnaire Baecke's short Physical Activity Questionnaire The Sociodemo- graphic Data Questionnaire 	Both work stress and the physical activity exerted observed direct effects on BMI reduction among managers.
2	Raisio, H.; Kuorikoski, T.; Rantala, T.; Rask, M (2021)	case reports/ qualitative descriptive study	Physically active executive-level leaders (e.g., cabinet ministers and CEOs) from Finland	N = 20 age: 43-64 years sex: 11 men, 9 women	- semi-structured interviews	The interviewees saw many good aspects of physical exer- cise, such as providing physical, affective, cognitive, and so- cial resources. The study highlights the role of balancing the harmonious and obsessive aspects of the relationship with exercising.

	Authors (years)	Study design	Population	Sample characteristics (n, sex, age)	Measurement methods	Main findings related to the purpose of this review
3	Azevedo SJS; Queiroz AP; Oliveira IRS; Lima FRA; Rodrigues CCFM; Salvador PTCO (2021)	qualitative descriptive study	Managers of the Health Unit	N = 44 sex: 16 men, 28 women	- individual interviews	Stressors outweigh the discourse on coping strategies (words linked to the word stress), which demonstrates that coping mechanisms among managers are still incipient. As coping strategies with stress, there was the search for health services and medications, as well as leisure but not physical activity.
4	Shaikh A.; Mohapatra S.; Baskaran Ch. (2022)	cross-sec- tional study	White-collar workers (both employees and managers) from 8 corporate sectors at India	N = 203: 178 (87.7%) employees, 25 (12.3%) employers (managers) sex: 132 men age: 29 ± 12	- semi-structured questionnaire, "Knowledge, Atti- tude and Practice of Physical Activ- ity Questionnaire"	Though employers and employees have adequate knowledge and attitude, the practice of SB interventions and PA practices are found to be low in Indian workplaces. Any significant difference in attitudes among employees and employers toward PA practices at work except "bike or walk to work" construct.
5	Kuntz J.C. (2020)	cross-sec- tional study	Workers throughout New Zealand during the month of May 2020 from several sectors.	N = 61 17 - managers 44 - non-managerial	- semi-structured interviews	The respondents stated that lack of leadership by example and poor support for wellbeing, significantly contributed to their stress levels and difficulty coping with role demands during the lockdown. Almost 60 per cent of the interviewees across all sectors surveyed remarked on the importance of managerial support for wellbeing as stress management fac- tors.
6	de Nisau (2021)	population study	Leaders from the company BIG4; average BMI: 24,1	N = 40 average age: 37	- direct measurement with the Bodyguard device	The study results showed that 56% of respondents presented insufficient level of undertaken physical activity and only 14% of the managers presented very good or extraordinary fitness level.

4. Discussion

To our knowledge, this is the first review describing the relationship between physical exercises and stress during a pandemic among managers. The studies in this literature review have been interpreted by examining six related articles. Moreover, this study analyzed evidence from different regions of the world (Mexico, New Zealand, Brazil, Finland, India, Poland) and different professions. The review showed that during the pandemic the research into the manager's group was neglected. In most cases, the conducted surveys and interviews included the general population, not specific groups, such as for instance the managers. Only four of the studies we found specifically concerned the group of managers. Based on our review, it can be assumed that the knowledge and attitude towards the importance of physical activity among managers was adequate; however, the frequency of undertaken physical activity was not enough and suitable to the managers' real needs.

Physical activity has been a good and effective choice to mitigate the negative effects of the COVID-19 pandemic on mental health. Marconcin's [29] study suggested that higher physical activity is associated with higher well-being and quality of life as well as with lower depressive symptoms, anxiety, and stress, independently of age during the first year of the COVID-19 pandemic. Similarly, the research by Hernandez et al. [24] and Raisio et al, [25] show that physical activity during the COVID-19 pandemic has been helpful and contributed to the important benefits among managers.

The leadership is connected with high levels of work pressure and stress, long working hours, numerous meetings, the need for global travel and uncertainty of the surrounding environment. A high level of physical fitness is then seen as contribution to maintaining high management skills and health condition [30]. The leaders who exercise regularly might benefit from, for instance, improved information processing, error recognition, executive function, and decision-making. In addition, physically active leaders should be able to dispose of an elevated level of physical resilience, which should decrease their physical exhaustion due to intensive work and should also be able to prevent different health stressors [31]. Moreover, undertaking regular sport activity can result in psychological benefits or affective resources, such as positive affect and increased self-esteem. Finally, physical exercise is associated with enhanced cognitive resources, such as attention, memory, and reaction time [25].

Managerial positions are highly stressful, and although physical activity may reduce the negative effects of work stress, the relationships between undertaking sport and its effect on managers' body mass index (BMI) is rarely studied. Meanwhile, the subject of increased BMI in the population and its risk is an issue raised for a long time. The WHO Expert Consultation on Obesity, already in 1997, warned of an escalating epidemic of obesity, which would put the populations of most countries at high risk of developing non communicable diseases (NCDs) [32]. The Department of Nutrition for Health and Development at WHO has been working to establish a Global Database on the Body Mass Index. The worldwide surveys conducted by them between 1994–2002, including both sexes and the population at the age of 15-84, showed that the highest rates of overweight are concentrated on the Pacific Islands (Cook Islands, 78% with BMI > 25), North America is second (the USA, 63% with BMI > 25), Middle East comes third (Bahrain, Egypt, 62–61% with BMI > 25), followed Europe (Germany, 60% with BMI > 25), South Africa (45% with BMI > 25) and Asia (Singapore, 30% with BMI > 25). Then, the highest obesity rate represented again the region of the Pacific Islands (Nauru, 43% with BMI > 30), second was the USA (28% with BMI > 30), third Middle East (Bahrain, 29% with BMI > 30), Africa (South Africa) and Europe (Germany) with the same rate -21% of the population with BMI > 30 were at the bottom at the data list (Prentice, 2005). A conclusion from the extracted articles is that there is a great importance of physical activity for the managers' both physical and mental well-being.

managers' group could have resulted in two possible options of undertaking physical activity during the COVID-19 pandemic – excess resulting in self-concentration and negligence of workers and family or deficit connected with health problems and distress increase. Future studies should systematically assess and quantify individual differences among managers, both as a baseline predictor of physical activity engagement and across time as a mechanism of resilience improvements.

The research conducted on the subject of stress management strategies among managers before the pandemic contained significant information about the resistance of some of the examined managers who were not interested in disclosing their lowered mood or self-esteem. The probable reason for this could have been the apprehension of image disturbance of "a successful man" [33,34]. In our opinion, this significant factor could have resulted in less research conducted among the managers.

It appears that the population with managerial positions appreciate the role of physical activity as a reliable tool of self-improvement and stress control. The undoubted crisis caused by a sudden outbreak of the COVID-19 pandemic could entirely surprise the leaders and compel them to make new and unexpected choices connected with their and their employees' new or other responsibilities. It is highly likely that in the longer term it could have caused physical activity, even as valued part of their daily routine, to become less significant in the time of a worldwide crisis. Bearing in mind the great responsibility incumbent on many managers, this is a group that should be surrounded by special support also through the conducted research. There is no doubt that stress in the workplace has a negative impact on managers and employees' mental and physical health [35]. It is very important for people suffering from work-related stress to learn to recognize it and deal with it easily in order to maintain good mental health and work effectively by taking advantage of the benefits of physical activity. The future study should be designed to bridge the gap between what is already known about the coping strategies related to physical activity used by mangers and about how people working in managerial positions are actually coping with stress during a crisis situation like the COVID-19 pandemic.

In summary, the subject seems to be essential for further research to broaden the knowledge regarding this specific social group and their positioning of physical activity as a stress lowering tool. Taking into consideration the daily high responsibility of managers, subsequent research can contribute to help them find and develop the most effective ways of using sport in their everyday schedule, not only in critical conditions, as it was during the COVID-19 pandemic.

5. Limitations

This review has limitations. Longitudinal and intervention studies were not found, and there is very little literature regarding the subject. The constraints of a cross-sectional study prevents drawing definitive conclusions regarding the subject. In our opinion, the research based on interviews is insufficient, and objective research is highly required.

6. Conclusions

In 2020, together with the global spread of the COVID-19 pandemic, humankind experienced an emergency situation. The protection of human life and health became a priority. Medical research on COVID-19 has revealed a wide variety of symptoms of the disease. In the meantime, it turned out that maintaining physical activity may effectively contribute to reducing the negative effects of COVID-19. People who exercise can be fitter and healthier and deal with stress in more constructive ways [33]. This review on the subject of physical activity as a stress coping strategy among managers showed that very few studies have been conducted on this population during the pandemic. The articles on the subject which have been taken into consideration showed that managers were highly aware of the role of sport in lowering stress and improving health, especially during the pandemic. However, this did not result in more frequent physical activity among the leaders. Moreover, the managers perceived themselves as more active than they were in reality. There is a high probability that confronting the leaders with their real physical activity daily habits further, not imaginary athletic vision of

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themselves, would have influenced their reflection about the subject and initiated change.

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Article Well-Being of High-Level Managers during the Pandemic: The Role of Fear of Negative Appearance, Anxiety, and Eating Behaviors

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Abstract: (1) Background: The COVID-19 pandemic has caused unprecedented changes in the contemporary world, significantly affecting the work of companies, especially management staff. This study investigated whether fear about one's health (caused by the pandemic, disordered eating attitudes, or concerns about one's body image) has a negative relationship with the well-being of managers. (2) Methods: N = 354 managers (222 women, 126 men, and 6 people with no gender identity) participated in the study. The following psychometric instruments were used: the psychological well-being scale, the coronavirus anxiety scale, the fear of negative appearance evaluation scale, and the eating attitude test-26. Results: the fear of negative appearance influenced the well-being of the studied managers. However, this relation was mediated by dieting as well as bulimia and food preoccupation. (4) Conclusions: the well-being level depended on the managers' positive body images, but only when mediated by healthy dieting and eating attitudes. While the well-being level of managers was high, it is worth further exploring how they can flourish and develop in life and work, which can also transfer to the quality of life of their co-workers and companies. However, the subject of the well-being of managers warrants more research; for example, by considering different moderators, such as job experience, gender, and age. Moreover, experimental studies examining the effectiveness of different interventions for the physical and mental health of managers could be worth investigating.

Keywords: well-being; managers; eating attitudes; body image; COVID-19

1. Introduction

At the beginning of 2020, the COVID-19 pandemic caused significant changes in the functioning of entire societies. The hitherto unknown virus (associated with acute pneumonia) constituted a serious threat, especially for people suffering from chronic diseases. The novelty of the situation was supplemented with an inconsistent information policy on the part of the media and national governments, which further complicated an already difficult situation. When the WHO [1] announced that the coronavirus constituted a global pandemic in March 2020, many governments announced lockdowns, limiting the reasons for which people could leave their homes and reducing traveling to work to a minimum. People in contact with infected persons had to quarantine to limit the spread of the virus.

During the pandemic, workplaces had to make significant changes in a very short timeframe—many companies switched to remote working, using online communication platforms, email, and intranet [2]. Many employees, especially in the catering and hotel industries [3], were forced to leave their jobs or stop working, and, where possible, employees performed their tasks from home [4]. According to Gartner [5], in half of the world's companies, about 80% of employees during the pandemic worked from home.



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Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). This situation was a source of new difficulties and challenges for managers, potentially affecting their well-being. Introducing changes in work organizations and supervising employees working from home were undoubtedly factors that, in addition to traditional duties, increased the workloads of managers. [6–9]. Lower levels of well-being among managers, even before the pandemic, were usually associated with increased levels of stress due to the duties and requirements associated with their work [10-12]. Concern for one's health (and that of one's relatives) often contributed to a significant increase in anxiety and a deterioration in mental health [13]. Although the media has mainly paid attention to physical COVID-19-related health concerns, many studies have shown deterioration in mental health, particularly depression and anxiety disorders [14–16]. It should also be emphasized that managers can often serve as role models for employees, especially regarding healthy lifestyles [17]. Understanding the relationship between healthy eating and well-being in managers can contribute to a better understanding of the determinants of a healthy lifestyle in employees. People who experienced healthy lifestyles, took care of their diets, and were physically active before the pandemic, may have had difficulties continuing these practices during the COVID-19 pandemic, which resulted in the recent worldwide increase in body weight. This phenomenon is a new pandemic, termed covibesity [18]. Given the significant impact of social media on the perceptions of physical attractiveness and one's own body, the discomfort associated with covibesity could have had a substantial impact on people's well-being during the pandemic. Research shows that due to spending substantial amounts of time on social media platforms, many people have been observing their images for longer amounts of time than prior to the advent of social media [19]. Research shows that one-third of people who concentrate on their images for long periods experience decreased satisfaction with their appearances [20].

Furthermore, difficulties participating in daily activities and negative perceptions of one's own appearance may have caused significant changes in diets, which may be associated with eating disorders [21]. As Scharmer et al. [22] pointed out, people with a high intolerance to uncertainty were particularly at risk of developing eating disorders during the pandemic.

Managers are a professional group that may have been particularly vulnerable to the consequences of the COVID-19 pandemic. Significant sources of anxiety and stress for this group included feelings surrounding health threats, stress about work, and the need to reorganize their workplaces for subordinates Numerous studies [23,24] indicate a significant relationship between anxiety and mental health consequences, especially in the forms of eating disorders and negative attitudes about one's appearance. The aim of the present study was, therefore, to review how anxiety surrounding the COVID-19 pandemic was associated with eating disorders and self-image assessment, and how these factors were associated with the sense of well-being of managers. These factors, in addition to their significant impact on well-being, are directly related to healthy lifestyles.

Given that the pandemic was unprecedented and that previous scientific research did not produce coherent theories on how high-level workers could respond to this situation, this study is exploratory. Therefore, the following research questions were posed: (1) How did the fear of COVID-19 and the fear of negative image predict the life satisfaction feelings in managers? (2) Are eating behaviors mediators in this relationship?

The next section presents the methods and describes the group of participants. The third section presents the results, followed by a discussion, study limitations, and future directions.

2. Materials and Methods

2.1. Sample

Managers from Polish companies (mainly IT and insurance companies) were invited to participate in the study using the snowball sampling procedure. Data were collected in 2021 and 2022 during the 4th and 5th waves of the pandemic. The study was conducted in the form of an online questionnaire. Prior to the start of the study, the participants gave written consent to participate. The study involved N = 354 managers (n = 222 women; n = 126 men, and n = 6 people who did not answer the question about gender). The respondents held managerial positions for M = 12.33 years (SD = 8.65). The majority of respondents (58%) were top-level managers, 25% were mid-level, and 17% were line managers. Each participant had to manage at least 10 employees to be included in the study. The mean age of the participants was M = 48.14 (SD = 9.69).

2.2. Instruments

The following research instruments were used in this study: the psychological wellbeing scale was used to determine the outcome variable; the coronavirus anxiety scale and the fear of negative appearance evaluation scale were used to determine the predictors; and the eating attitude test was used to determine the mediator. Below is a detailed description of the instruments.

The psychological well-being scale (PWBS) [25] was used (i.e., its Polish version by Karaś and Cieciuch) [26]. Participants responded via a six-point Likert scale (1—*strongly disagree*; 6—*strongly agree*) and subscales pertaining to self-acceptance, environmental mastery, positive relations, purpose in life, personal growth, and autonomy (e.g., "I'm pretty good at dealing with the responsibilities of everyday life"; "I like most of my character traits"). Each scale consists of three test items. The higher the score, the higher the rated well-being level. Cronbach's alpha (the Polish version of the scale) was moderate (0.77).

In order to measure levels of anxiety during the pandemic, the coronavirus anxiety scale (CAS) [27] was used, i.e., the Polish language version developed by Skalski et al. [28]. The questionnaire consists of five items (e.g., "I felt paralyzed or frozen when I thought about or was exposed to information about the coronavirus"), to which the participants responded on a five-point Likert scale (1—*not at all*; 5—*nearly every day for the past two months*). Higher CAS scores indicate dysfunctional anxiety associated with COVID-19. Cronbach's alpha (the Polish version of this scale) was 0.80.

The fear of negative appearance evaluation scale (FNAES) [29] was used to determine levels of concerns related to body image (e.g., "I am concerned about what other people think of my appearance"; "I am afraid other people will notice my physical flaws"). The scale has been translated into Polish [23]. The participants responded to six items regarding negative appearance problems on a five-point Likert scale (1—*not at all*; 5—extremely). The psychometric properties of the scale were very good, with Cronbach's alpha (the Polish version) reaching 0.95.

To assess the eating behaviors of participants, we used the eating attitude test (EAT-26) [30], i.e., its Polish version by Rogoza, Brytek-Matera, and Garner [31]. The test consists of three subscales concerning: (1) dieting, (2) bulimia and food preoccupation, and (3) oral and control behavior (e.g., "I have the impulse to vomit after meals"; "I am terrified about being overweight"). The participants responded to 26 items on a 5-point Likert scale (1—*always*; 6—*never*). The psychometric properties of the Polish version of the EAT-26 were relatively good (Cronbach's alpha = 0.85).

3. Results

In order to verify the estimates of the theoretical model, structural equation modeling (SEM) was used. To calculate the SEM models, we worked in the R program and used the "lavaan" package [32]. The model's calculations were based on the MLR algorithm (maximum likelihood estimation with robust Huber–White standard errors). This method allows the computation of robust estimates and standard errors [33]. Table 1 presents basic statistics related to the variables examined. These results show that the measured variables were reliable $\alpha > 0.70$ (the exception was the oral control measurement: $\alpha = 0.59$), variable, and significantly correlated p < 0.05.

Measure	Cronbach's α	Μ	SD	1	2	3	4	5
Dieting (1)	0.85	4.53	0.77					
B&F preoccupation (2)	0.82	5.33	0.65	0.62 ***				
Oral control (3)	0.59	5.09	0.60	0.42 ***	0.39 ***			
Well-being (4)	0.75	4.60	0.47	0.14 *	0.28 ***	0.14 *		
CAS (5)	0.88	1.37	0.60	-0.26 ***	-0.35 ***	-0.30 ***	-0.25 ***	
FNAES (6)	0.93	2.10	0.89	-0.51 ***	-0.48 ***	-0.35 ***	-0.26 ***	0.33 ***

Table 1. Zero-order correlations, reliability, and basic descriptive statistics.

Legend: B&F—bulimia and food; CAS—COVID anxiety scale; FNAES—fear of negative appearance evaluation scale. *** p < 0.001; * p < 0.05.

3.1. Model Fit and Model Comparisons

Table 2 shows a comparison of the three models. The first comparison was between a saturated model and a model constrained to zero covariances between independent variables, the second one was between a saturated model and one constrained to zero covariances between mediator variables, and the third between one constrained to zero covariances between independent variables and another constrained to zero covariances between mediators. These comparisons suggest that the constrained models had a worse fit than the saturated one and that the constrained mediators model had a poorer fit than the constrained independent variables model. In the text, we reported the saturated model because the covariances between independent variables and covariances between mediators were significant, and constraining them to zero resulted in a significant mismatch between the data and the formulated model. Therefore, covariances between these variables had to be controlled. Fit statistics for these models are presented in the note for Table 2. In conclusion, the saturated model was the best fit because it perfectly reproduced all variances and covariances. The saturated model had a chi-square of zero with zero degrees of freedom and had the maximum values of the remaining fit statistics ($X^2(0) = 0.00$; CFI = 1.00; TLI = 1.00; NFI = 1.00; IFI = 1.00; RMSEA = 0.00; 90%CI [00-0.00]; PCLOSE = 0.000; SRMR = 0.00; GFI = 1.00; AGFI = 1.00).

Table 2. Model fit comparisons.

Comparison	Models	DF	AIC	BIC	X ²	X ² diff	DF diff
1	Saturated model	0	1613.87	1683.52	0.00		
	Model with constrained covariances between independent variables	1	5481.25	5558.63	54.57	64.34 ***	1
2	Saturated model	0	1613.87	1683.52	0.00		
	Model with constrained covariances between mediators	3	1759.33	1817.37	151.46	134.5 ***	3
3	Model with constrained covariances between independent var (<i>a</i>)	1	5481.25	5558.63	54.57		
	Model with constrained covariances between mediators (<i>b</i>)	3	1759.33	1817.37	151.46	76.59 ***	2

Note: X^2 diff = differences between X^2 estimates; p = p-value for X^2 ; df = degrees of freedom; AIC = Akaike information criterion; BIC = Bayesian information criterion. a = Fit statistics: $X^2(1) = 27.56$; p < 0.001; *CFI* = 0.95; *TLI* = 0.34; *NFI* = 0.95; *IFI* = 0.95; *RMSEA* = 0.27; 90%PU [0.19–0.37]; *PCLOSE* = 0.000; *SRMR* = 0.05; *GFI* = 0.97; *AGFI* = 0.32; b = Fit statistics: $X^2(3) = 151.46$; p < 0.001; *CFI* = 0.74; *TLI* = -0.22; *NFI* = 0.74; *IFI* = 0.74; *RMSEA* = 0.37; 90%PU [0.32–0.43]; *PCLOSE* = 0.000; *SRMR* = 0.10; *GFI* = 0.82; *AGFI* = -0.26. *** p < 0.001.

3.2. Estimates of Model Direct Path Value

Table 3 shows the direct path coefficient estimates. These results show that increased levels of FNAES, but not CAS, $\beta = -0.10$; Z = -1.86; p > 0.05, had significant influences on decreased well-being levels, $\beta = -0.17$; Z = -2.77; p < 0.01 (the subsequent analysis of indirect effects will show that these relations were mediated). Further analysis showed that increased levels of FNAES had significant influences on decreased levels of

dieting, $\beta = -0.48$; Z = -10.62; p < 0.001, but CAS had an insignificant impact, $\beta = -0.10$; Z = -1.86; p > 0.05. Then, it was observed that increased levels of CAS and FNAES had significant influences on decreased levels of B&F preoccupation ($\beta = -0.33$; Z = -5.16; p < 0.001 and $\beta = -0.39$; Z = -7.83; p < 0.001, respectively) and decreased levels of oral control ($\beta = -0.31$; Z = -4.77; p < 0.001 and $\beta = -0.27$; Z = -5.27; p < 0.001, respectively). Thus far, we have observed that both independent variables (CAS and FNAES) had impacts on specified mediators (dieting, B&F preoccupation, and oral control), with one insignificant exception being the influence of CAS on dieting. The analysis of the final part of the model showed that increased levels of dieting had significant influences on decreased levels of well-being, $\beta = -0.19$; Z = -2.96; p < 0.01, but B&F preoccupation increased wellbeing, $\beta = 0.33$; Z = 4.35; p < 0.001. Oral control was not related significantly to well-being, $\beta = 0.01$; Z = 0.24; p > 0.05. These results mean that in the context of mediators, only dieting and B&F preoccupation influenced well-being. The results are also shown in Figure 1.

Table 3. Estimates of model path values.

Dependent var	<-	Independent var	В	s.e.	Z	LCI	UCI	β
Well-being	<-	Cas	-0.08	0.04	-1.86	-0.16	0.00	-0.10
Well-being	<-	Fnaes	-0.09	0.03	-2.77 **	-0.15	-0.03	-0.17
Dieting	<-	Cas	-0.13	0.07	-1.86	-0.26	0.01	-0.10
Dieting	<-	Fnaes	-0.42	0.04	-10.62 ***	-0.49	-0.34	-0.48
B&F preoccupation	<-	Cas	-0.36	0.07	-5.16 ***	-0.5	-0.22	-0.33
B&F preoccupation	<-	Fnaes	-0.28	0.04	-7.83 ***	-0.35	-0.21	-0.39
Oral control	<-	Cas	-0.31	0.07	-4.77 ***	-0.44	-0.18	-0.31
Oral control	<-	Fnaes	-0.18	0.03	-5.27 ***	-0.25	-0.11	-0.27
Well-being	<-	Dieting	-0.11	0.04	-2.96 **	-0.19	-0.04	-0.19
Well-being	<-	B&F Preoccupation	0.24	0.06	4.35 ***	0.13	0.35	0.33
Well-being	<-	Oral Control	0.01	0.04	0.24	-0.08	0.10	0.01

Note: B = unstandardized regression coefficient; s.e. = standard error for B; Z = Z statistics; LCI and UCI = 95% confidence intervals (lower and upper, respectively); β = standardized regression coefficient. *** p < 0.001; ** p < 0.01.



Figure 1. Estimate of model path values.

3.3. Estimate of Model Indirect Path Values

Table 4 shows the estimates of indirect effects. The results show that the relationship between FNAES and well-being was mediated by dieting, B&F preoccupation, and oral control. The same mediating patterns were observed in the relationship between CAS and well-being, but with one exception being the mediating effect of dieting. Dieting was not a mechanism in this relationship. Generally, the observed patterns of mediation effects mean that CAS and FNAES were negatively related to eating attitudes. More specifically, dieting was negatively related to well-being, but B&F preoccupation was related positively. Interestingly, oral control was also a mediating mechanism, but its direct effect on wellbeing was insignificant. Generally, with a few exceptions, it can be concluded that dieting attitudes are mechanisms that relate FNAES and CAS to well-being.

Table 4. Estimate of the model's indirect effects.

Effect	В	s.e.	Ζ	LCI	UCI	β
CAS -> Dieting -> Well-being	0.01	0.01	1.53	0.00	0.03	0.02
FNAES -> Dieting -> Well-being	0.05	0.02	2.83 **	0.01	0.08	0.09
CAS -> B&F Preoccup -> Well-being	-0.09	0.03	-3.20 **	-0.14	-0.03	-0.11
FNAES -> B&F Preoccup -> Well-being	-0.07	0.02	-3.96 ***	-0.10	-0.03	-0.13
CAS -> Oral Control -> Well-being	-0.07	0.02	-3.07 **	-0.12	-0.03	-0.10
FNAES -> Oral Control -> Well-being	-0.04	0.01	-3.13 **	-0.07	-0.02	-0.09

Legend: B&F Preoccup—bulimia and food preoccupation; CAS—COVID anxiety scale; FNAES—fear of negative appearance evaluation scale. Oral Control—oral and control behavior. Note: B = unstandardized regression coefficient; s.e. = standard error for B; Z = Z statistic; LCI and UCI = 95% confidence intervals (lower and upper, respectively); β = standardized regression coefficient. *** p < 0.001 ** p < 0.01.

4. Discussion

In the current analysis, we searched for a model to explain the relations between certain psychological characteristics influencing the well-being of managers in Poland. We were particularly interested in the potentially significant roles of variables such as COVID-19 anxiety (measured with the coronavirus anxiety scale; CAS), fear of negative assessment of one's physical appearance (measured with the fear of negative appearance evaluation scale; FNAES) in the workplace, as well as eating attitudes (dieting, bulimia and food preoccupation, and oral control behavior) as mechanisms underlying these relationships. The analysis revealed that increased fear of negative appearance, but not COVID-19 anxiety, significantly decreased the levels of well-being. However, the covariation between the FNAES and psychological well-being was not due to a direct cause-and-effect relationship. The model found that eating attitudes, such as dieting, bulimia, and food preoccupation, relate the fear of negative appearance evaluation and COVID-19 anxiety to well-being. Nevertheless, COVID-19 anxiety does not significantly influence the well-being levels of the studied respondents. It can be concluded that managers whose self-images are highly dependent on the assessments of other co-workers are characterized by lower wellbeing. However, only when they undertake healthy diets do they simultaneously express obsessive attention to food and bulimic behaviors. It is very important to take into account that eating attitudes in the current study were measured with the eating attitude test (EAT-26), which was originally developed on a clinical sample to estimate the tendency toward eating disorders; therefore, the results should be interpreted with caution [31].

When analyzing our model, it could be speculated that managers are an occupational group with leadership personalities who desire control and order. These personality aspects could be helpful when managing workplaces and managing healthy behaviors/eating restrictions. The landmark longitudinal studies of Mishel et al. [34] proved that self-control and the ability to delay gratification are strongly related to success in life. Some similar conclusions have motivated the new psychological concept by Grit [35]. Zbierowski and Gojny-Zbierowska [36], in their analysis of character strengths that contribute to entrepreneur success, emphasize the need for self-regulation, i.e., self-control. In difficult

workplace situations, the most essential traits for success are persistence, self-regulation, humor, enthusiasm, teamwork, fairness, and leadership. Self-regulation could also help manage vices and habits, allowing managers to cope with pressure, impulses, and emotions. It seems that the studied managers could also compensate for their fear of negative appearance evaluations via food preoccupation and dieting. These results suggest that investments in appearance could motivate managers to diet in order to eliminate the fear of negative evaluations from others [37]. Furthermore, in a comparison between Poles and Indonesians, Novita et al. [23] found that Polish respondents more often expressed themselves through healthy dieting. Another possible explanation for the significant role of dieting and food preoccupation as a mediator between fear of negative appearance and well-being is that there is social pressure toward eating healthy and eating less. Nowadays, in many cultures, eating a healthy diet and paying attention to nutrition are considered important. Moreover, eating behaviors are within one's control and can symbolize a manager's internal locus of control. In a study on engineers, Rambe and Modise [38] found that the internal locus of control with the combination of behavior-focused strategies and self-leadership strategies had the most significant influence on job performance. On the other hand, dietary patterns may have changed during the lockdown and the pandemic, as people started working from home. Sorić et al. [39], in their study on Croatians during the COVID-19 pandemic, identified favorable changes toward better dieting that could be beneficial for physical and mental health.

Considering COVID-19 anxiety and well-being, we assumed that there would be a significant influence of emotions associated with COVID-19 on the levels of well-being. The results did not confirm our assumptions. This observation is similar to other studies that found that populations have adjusted to the pandemic for various reasons, including the availability of vaccination programs, reliable information on the consequences of the coronavirus disseminated through mass media, and established patterns of healthy behaviors [40].

This study has limitations that are typical of correlational studies. Investigating the model based on age and gender could generate valuable results. In addition, the limitations of the presented study include the recruitment procedure—the sampling was purposive, which does not meet the criteria of a random selection. Future studies could recruit managers from a greater variety of companies and residences. Moderators, such as job experiences and positions in the hierarchy of the company, could also be taken into account. Past disordered eating should also be investigated. Future studies should consider including the aforementioned variables and moderators as well as explore interventions that could benefit the physical and mental health of managers. Moreover, the mental health of employees could provide substantial information regarding effective crisis management strategies in the future.

5. Conclusions

Positive body images were associated with high levels of well-being among managers, but only when mediated by healthy dieting and paying attention to nutrition. While the well-being level of managers was high, it is worth investigating how they can better flourish and develop in life and work. The well-being of managers could transfer to the quality of life of their co-workers and companies. Nowadays, more jobs require creativity, which strongly correlates with positive emotions. In the long run, workers must be cheerful to be creative and innovative. Generating a positive work atmosphere is part of the responsibility of emotionally intelligent and happy leaders.

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Article



Gender and Work Experience as Moderators of Relations between Management Level, Physical Activity, Eating Attitudes, and Social Skills of Managers during the COVID-19 Pandemic

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Abstract: Being employed in a managerial position is often associated with maintaining high standards in many aspects of life. Many leaders pay attention to their physical activity, eating habits, and social skills. The onset of the COVID-19 pandemic brought additional difficulties to the alreadydemanding job of managing people and forced managers to make many changes to their daily functioning at work. The main goal of this study was to establish whether Gender, Experience, and Management Level influenced respondents' healthy behaviors (eating attitudes and physical activity) or soft skills during the COVID-19 pandemic. This study was carried out during the COVID-19 pandemic with a sample of 348 managers from a variety of companies (n = 222 women, n = 126 men) with different levels of experience and responsibility. The authors used the 26-item Eating Attitudes Test (EAT-26), four questions from the Physical Activity Objectives Questionnaire, and a self-authored soft skills questionnaire. The results showed that, compared to females, males were characterized by lower levels on all three EAT-26 scales: Bulimia and Food Preoccupation, Oral Control, and Dieting. On the other hand, male respondents who held high managerial positions were characterized by high levels of Dieting, Oral Control, Bulimia, and Food Preoccupation. This analysis provides insights that may help improve the quality of life of employees; however, further research is needed to investigate the direct influence of managers on employees in different industries.

Keywords: social skills; physical activity level; gender; eating attitudes; managers; COVID-19 pandemic

1. Introduction

During the worldwide crisis caused by the pandemic, almost all workplaces had to make significant changes quickly—in particular; switching to remote working [1]. For a variety of reasons, managers are a professional group that may have been particularly vulnerable to the consequences of the COVID-19 pandemic. The feeling of a real threat to their health, considerable distress about their work, and the need for a sudden reorganization of the workplace for subordinates could have been sources of significant anxiety for this group, in addition to the more typical demands of the role of manager. Holding a managerial position is often associated with maintaining high standards of appearance, diet, physical activity (PA), and social skills. A manager often wishes to set a good example as part of their management of human resources. For this reason, physical fitness is considered an excellent way to build physical, psychological, and social resiliency among managers and is therefore important for maintaining a healthy lifestyle. Another significant motivation for undertaking PA is that physically fit leaders have been found to have increased stamina and mental focus [2–5]. Moreover, leaders who exercise regularly might benefit



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Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). from immediate post-exercise effects, such as improvements in information processing, error recognition, executive function, and decision-making [6]. Additionally, engaging in physical activity, particularly at a moderate intensity, demonstrates a positive correlation with both health perception and mood. Furthermore, it has been shown to contribute positively to well-being by enhancing recovery experiences [7,8]. There is emerging evidence suggesting that regular physical activity might be linked to a decreased likelihood of experiencing severe outcomes from COVID-19. These findings underscore the protective role of adequate physical activity as a valuable public health strategy, offering potential advantages in reducing the risk of severe COVID-19 cases. Notably, individuals who regularly participate in physical activities exhibited lower rates of hospitalization, severe illness, and COVID-19-related fatalities in comparison to their less active counterparts. Recent studies [9,10] have reported that adults with high and moderate levels of physical activity experienced significantly better outcomes upon contracting COVID-19 than those with low levels of activity. With all the above benefits in mind, we were interested in how experience and management level could affect the PA of managers.

When examining the impact of eating behaviors on well-being during a pandemic period, certain studies have revealed that participants exhibited subpar well-being, inadequate levels of physical activity, and moderate scores in terms of healthy eating. Notably, an increase in physical activity and the adoption of healthier eating habits were linked to improved well-being, while a sedentary lifestyle correlated with a decline in well-being [11]. Consequently, our curiosity extended to eating attitudes, especially within the context of potential eating disorders among leaders. This additional focus on eating attitudes seamlessly integrates with our understanding of leaders' well-being, underscoring the intricate connections between physical activity, dietary preferences, and mental health. According to the leading eating disorder treatment center in the USA, the Center for Discovery, research has shown that many high-level leaders experience significant stress and, as a result, use comfort food as a coping mechanism. Engaging in comfort eating puts individuals at risk of developing bulimia or binge eating disorders. Attention has also been paid to women who have high-achieving personalities and a strong desire to accomplish their goals. Women who are high achievers are more likely to hold higher positions in their fields and face significant pressure, especially from the gender gap in society, to achieve the 'thin ideal.' Constantly being pressured and reminded that they must fulfill physical and societal expectations could seriously harm their feelings of self-worth. Poor self-worth can result in poor self-image and low self-esteem, which can drive women to engage in unhealthy eating behaviors, resulting in eating disorders [12]. Potential differences in eating attitudes between the genders were also a focus of our attention.

Empirical studies indicate that managers spend up to 70% of their time interacting and communicating with other people. Managers are in daily contact with individual people but also with group representatives, businesses, and the public. This can be very demanding. Empathy, assertiveness, the ability to motivate and to listen, and other social skills are crucial for the effective management of human resources [13]. Since the early years of the twentieth century, the individual characteristics of leaders have been systematically researched in order to find and explain the factors that distinguish the exemplary manager and to help managers lead more effectively [14]. Rosiński states that a leader in a management situation is the person who has the greatest influence and power to motivate as well as to help employees be self-motivated by passion, feel part of a group, and perceive the leader as a model. A manager should not only be task- and management-oriented but should also focus on subordinates [15], as many theories of leadership emphasize the importance of a leadership style that balances people's needs with production and considers the interaction between the leader's personality and the control aspect of the situation as the most optimal approach to leadership.

Our research focused on certain soft skills of managers. Choudary and Ponnuru indicate that "soft skills" are often associated with a person's Emotional Intelligence Quotient. Thus, soft skills are linked with factors central to relationships with other people,

such as personality traits, social competence, communication, language, personal habits, interpersonal skills, managing people, and leadership [15]. Cimatii adds that the term "soft skills" is an indicator of all the competencies not directly connected to a specific task that pertains to relationships with other people in the organization. The whole quality of an enterprise depends strongly on the soft skills possessed by personnel at every level [16].

This paper sought to describe managers of different levels and experiences and their cooperation with employees during the pandemic. Furthermore, we wanted to investigate whether gender, management level, and experience were associated with a manager's soft skills and PA levels. Therefore, we formulated the following research questions: (1) How does gender affect the eating attitudes and PA of managers? (2) Are experience and management level mediators of managers' PA levels and soft skills?

2. Materials and Methods

2.1. Sample

This study group consisted of managers from Polish companies invited to participate in this study using the snowball sampling procedure. Prior to the start of this study, participants gave their written consent to participate. Data were collected in 2022, during the fourth and fifth waves of the pandemic. This study was conducted using an online questionnaire.

This study involved N = 348 managers (n = 222 women; n = 126 men). The majority of respondents (58%) were top-level managers, 25% were mid-level, and 17% were first-line managers; 175 of the respondents had many years' experience (M = 5.86), and slightly fewer (173) had fewer years' experience (M = 5.53). The mean age of the participants was M = 50.72 (SD = 9.66).

2.2. Instruments

The research survey began with a questionnaire constructed by the authors of this study, consisting of seven questions concerning managers' soft skills, three questions regarding PA, and five questions collecting information about the attitude of managers towards COVID-19. Below are the specific elements of the researched social skills, together with sample questions.

- (a) Emotional Interest ('Do you have more interest in your subordinates' emotional lives during the COVID-19 pandemic than before it?')
- (b) Motivation ('Do you motivate your subordinates with words, e.g., "You can do this," "I believe in you", more often during the COVID-19 pandemic than before it?')
- (c) Supporting ('Do you ask your subordinates questions such as "What is your biggest fear?" or "How can I help you?" more often during the COVID-19 pandemic than before it?')
- (d) Health Interest ('Has the COVID-19 pandemic increased your interest in the health of your subordinates?')

We used four questions from the Physical Activity Objectives Questionnaire, in its Polish version by Lipowski and Zaleski [17], to assess PA over the course of a month. Participants responded to the following questions: (1) 'Do you participate in classes (e.g., in a fitness club/gym)?'—yes/no response; (2) 'How many times a month?'—open question; (3) 'Do you engage in physical activity on your own?'—yes/no response; (4) 'How many times a month?'—open question.

We used the Eating Attitude Test (EAT-26), in its Polish version by Rogoza, Brytek-Matera, and Garner [18], to assess the eating behaviors of the participants. The test consists of three subscales concerning: Dieting (e.g., 'I am preoccupied with a desire to be thinner'), Bulimia and Food Preoccupation (e.g., 'I feel that food controls my life'), and Oral Control (e.g., 'I cut food into small pieces'). The participants responded to 26 items on a five-point Likert scale (1—always; 5—never). Cronbach's alpha for the Polish version of the EAT-26 was relatively good (0.85).

The online survey took place from January 2022 to December 2022. All the questionnaires used for the purpose of this online study are attached in Appendix C.

2.3. Statistical Analysis

All statistical analysis, tables, and figures were generated in R [19] using the kableExtra [20], ggplot [21], and jtools [22] packages. We performed a series of regression models with Gender and Experience as moderators (divided by median split Me = 24 years for Short and Long Experience groups). The analysis is divided into two sections: the first pertains to the Gender moderator and the second to the Management Level moderator. Furthermore, an analysis of the collected COVID-19-related variables was performed: Previous COVID-19 disease; Opinion of Diagnosis Against COVID, Being Vaccinated, and Opinion of Mandatory Vaccinations (variable characteristics are presented in Appendix A). To check the robustness of the tested models, we conducted a series of additional regression analyses, controlling for the moderating effects of the aforementioned COVID-19-related information. These analyses showed that the introduction of these variables into the models had almost no effect on the analyzed moderation effects. These results are presented in Appendix B.

3. Results

Below, Table 1 shows sample characteristics, descriptive statistics, and frequencies for the variables used in the analyses in gender subgroups. The table indicates that females had a lower diet score and BMI than males. BMI by category division showed that females had a rather normal weight, but males were rather overweight. There were also significant effects of education. Females often had a higher master's degree than males, but males often had a higher PhD than females. Further, analysis of the rows of the table indicates that females had higher scores in terms of supporting, emotional, health interest, and motivating. There were no other significant differences between males and females.

Characteristic	Female, N = 222 ¹	Male, N = 126 ¹	<i>p</i> -Value ²
Dieting (EAT-26)	4.46 (0.78)	4.64 (0.74)	0.040
Bulimia and Food Preoccupation (EAT-26)	5.34 (0.59)	5.34 (0.70)	0.359
Oral Control (EAT-26)	5.11 (0.55)	5.07 (0.65)	0.975
Physical Activity	0.86 (0.75)	0.90 (0.70)	0.641
Experience	23.82 (9.82)	24.03 (9.27)	0.996
Experience as a Manager	11.91 (8.28)	13.29 (9.29)	0.258
Number of Subordinates	45.49 (117.00)	77.72 (359.85)	0.768
Management Level			0.097
First line manager	36/222 (16%)	22/126 (17%)	
Mid_level manager	49/222 (22%)	40/126 (32%)	
Top manager	137/222 (62%)	64/126 (51%)	
Supporting (soft skill)	4.91 (1.69)	4.45 (1.70)	0.013
Emo Interest (soft skill)	5.21 (1.66)	4.47 (1.80)	< 0.001
Motivating (Soft skill)	5.05 (1.72)	4.27 (1.76)	< 0.001
Health Interest (soft skill)	5.87 (1.42)	5.39 (1.62)	0.005
Age	47.99 (9.54)	48.58 (9.88)	0.706

Table 1. Sample characteristics.

Characteristic	Female, N = 222 ¹	Male, N = 126 1	<i>p</i> -Value ²
Education			< 0.001
Higher_Bachelor	11/222 (5.0%)	8/126 (6.3%)	
Higher_Master'sdegree	190/222 (86%)	84/126 (67%)	
Medium	4/222 (1.8%)	4/126 (3.2%)	
PhDorhigher	17/222 (7.7%)	30/126 (24%)	
BMI	24.62 (4.87)	26.92 (3.95)	< 0.001
BMI cat			< 0.001
Normal Weight	134/222 (60%)	34/126 (27%)	
Obesity	32/222 (14%)	25/126 (20%)	
Overweight	50/222 (23%)	65/126 (52%)	
Underweight	6/222 (2.7%)	2/126 (1.6%)	

Table 1. Cont.

¹ Mean (SD); n/N (%). ² Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test.

3.1. Analysis of Gender

Regression analysis for Bulimia and Food Preoccupation showed significant results: F(3, 342) = 3.54, p < 0.05: $R^2 = 0.03$, adj. $R^2 = 0.02$. The analysis showed that males had lower Bulimia and Food Preoccupation than females. There was also a significant interaction between Gender and Management Level. Detailed analysis of simple interaction effects showed that there was no relation between Management Level and Bulimia and Food Preoccupation in the female group (B = 0.03, t = 0.63, p > 0.05, $\beta = 0.04$, 95% CI [-0.06, 0.15], $R^2 = 0.00$). In the male group, higher Management Level was related to increased Bulimia and Food Preoccupation, B = 0.24, t = 2.95, p < 0.01, $\beta = 0.26$, 95% CI [0.10, 0.42], $R^2 = 0.07$). Results are presented in Figure 1.





Further analysis of Dieting showed significant results: F(3, 342) = 4.31, p < 0.01, $R^2 = 0.04$, adj $R^2 = 0.03$. The analysis showed that males had lower Dieting than females. There was also a significant interaction between Gender and Management Level. Detailed analysis of simple interaction effects showed that there was no relation between Management Level and Dieting in the female group (B = -0.12, t = -1.66, p > 0.50, $\beta = -0.11$, 95% CI [-0.25, 0.02], $R^2 = 0.01$. In the male group, higher Management Level was related to increased Dieting, B = 0.21, t = 2.43, p < 0.05, $\beta = 0.21$, 95% CI [0.04, 0.38], $R^2 = 0.05$). Results are presented in Figure 2.



Figure 2. Gender as a moderator of the relationship between Management Level and Dieting.

Analysis for Oral Control showed results close to significant: F(3, 342) = 1.92, p < 0.10, $R^2 = 0.02$, adj. $R^2 = 0.01$. The analysis showed that males had lower Oral Control than females. There was also a significant interaction between Gender and Management Level. Detailed analysis of simple interaction effects showed that there was no relation between Management Level and Oral Control in the female group (B = -0.02, t = -0.31, p > 0.05, $\beta = -0.02$, 95% CI [-0.12, 0.08], $R^2 = 0.00$). In the male group, higher Management Level was related to increased Oral Control, B = 0.16, t = 2.12, p < 0.05, $\beta = 0.19$, 95% CI [0.04, 0.34], $R^2 = 0.04$). Results are presented in Figure 3.

The last regression model related to the Gender moderator. The supporting social skill as a dependent variable had a significant result: F(3, 342) = 5.20, p < 0.01, $R^2 = 0.04$, adj. $R^2 = 0.04$. The analysis showed that males had lower Supporting than females. There was also a significant interaction between Gender and Management Level. Detailed analysis of simple interaction effects showed that there was no relation between Management Level and the Supporting social skills in the female group (B = 0.04, t = 0.25, p > 0.05, $\beta = 0.02$, 95% CI [-0.28, 0.31], $R^2 = 0.00$). In the male group, higher Management Level was related to increased Supporting, B = 0.59, t = 3.04, p < 0.01, $\beta = 0.26$, 95% CI [-0.12, 0.65], $R^2 = 0.07$). Results are presented in Figure 4.



Figure 3. Gender as moderator of the relationship between Management Level and Oral Control.



Figure 4. Gender as moderator of the relationship between the Management Level and the Supporting social skills.



There was also a model for PA level; however, this model was not significant: F(3, 342) = 2.10, p > 0.05. Results are presented in Figure 5.

Figure 5. Gender as a moderator of the relationship between Management Level and Physical Activity.

3.2. Analysis for Experience

The regression analysis for Emotional Interest showed significant results: *F* (3, 342) = 2.69, p < 0.05, $R^2 = 0.02$, adj. $R^2 = 0.01$. The analysis showed that increased Experience and Management Level were related to a decreased level of Emotional Interest. Detailed analysis of simple interaction effects showed that there was no relation between Management Level and Emotional Interest in the Short Experience group (B = -0.22, t = -1.29, p > 0.05, $\beta = -0.10$, 95% CI = [-0.43, 0.23], $R^2 = 0.01$. In the Long Experience group, higher Management Level was related to increased Emotional Interest, B = 0.47, t = 2.30, p < 0.05, $\beta = 0.18$, 95% CI [-0.22, 0.57], $R^2 = 0.03$). The results are presented in Figure 6.

Further analysis for Health Interest showed significant results: *F* (3, 342) = 5.39, p < 0.01, $R^2 = 0.05$, adj. $R^2 = 0.04$. The analysis showed that increased Experience and Management Level were related to a decreased level of Health Interest. Detailed analysis of simple interaction effects showed that there was no relation between Management Level and Health Interest in the Short Experience group (B = -0.08, t = -0.58, p > 0.05, $\beta = -0.04$, 95% CI [-0.33, 0.24], $R^2 = 0.00$). In the Long Experience group, higher Management Level was related to increased Health Interest, B = 0.59, t = 3.40, p < 0.001, $\beta = 0.26$, 95% CI [-0.09, 0.60], $R^2 = 0.07$. Results are presented in Figure 7.



Figure 6. Experience as a moderator of the relationship between Management Level and Emotional Interest.



Figure 7. Experience as moderator of the relationship between Management Level and Health Interest.

The analysis for Motivating showed significant results: F(3, 342) = 7.14, p < 0.001, $R^2 = 0.06$, adj. $R^2 = 0.05$. The analysis showed that increased Experience and Management Level were related to decreased Motivation. These counterintuitive results were observed

due to the high collinearity of Experience (VIF = 10.30) and Management Level (VIF = 6.17). Detailed analysis of simple interaction effects showed that there was no relation between Management Level and Motivating in the Short Experience group (B = -0.10, t = -0.58, p > 0.05, $\beta = -0.04$, 95% CI [-0.37; 0.28], $R^2 = 0.00$). In the Long Experience group, increased Management Level was related to increased Motivating, B = 0.73, t = 3.55, p < 0.001, $\beta = 0.27$, 95% CI [-0.14, 0.67], $R^2 = 0.07$). Results are presented in Figure 8.



Figure 8. Experience as a moderator of the relationship between Management Level and Motivating.

The last regression model related to the Management Level moderator. The Supporting social skill as a dependent variable was significant, F(3, 342) = 6.26, p < 0.001, $R^2 = 0.04$, adj. $R^2 = 0.04$. The analysis showed that the level of the Supporting social skill was not related to Experience; however, a higher Management Level was related to decreased Support. Nevertheless, a detailed analysis of simple interaction effects showed that there was no relation between the Management Level and the Supporting social skill in the Short Experience group. B = -0.11, t = -0.72, p > 0.05, $\beta = -0.05$, 95% CI [-0.37; 0.26], $R^2 = 0.00$. In the Long Experience group, increased Management Level was related to increased Supporting, B = 0.67, t = 3.39, p < 0.001, $\beta = 0.25$, 95% CI [-0.14, 0.64], $R^2 = 0.06$). Results are presented in Figure 9.

The model for PA level was significant, F(3, 342) = 3.28, p < 0.05, but only for the intercept term, a = 1.04, t = 5.33, p < 0.001. The predictors and interaction terms were not significant. Results are presented in Figure 10.



Figure 9. Experience as a moderator of the relationship between Management Level and Supporting.



Figure 10. Experience as a moderator of the relationship between Management Level and Physical Activity.

Dependent β UCI2 Variables in Model В s.e. t LCI UCI р LCI2 Variable 5.25 36.76 4.97 5.53 < 0.001 Intercept 0.14 GenderMale -0.460.23 -2.00-0.91-0.01< 0.05 -0.35-0.80.1 B and F Management Level 0.03 0.06 0.59 -0.080.14 >0.05 0.04 -0.070.15 Preocup (1) GenderMale * 0.20 0.09 2.20 0.02 0.39 < 0.05 0.39 0.21 0.57 Management Level 4.74 0.17 27.29 4.40 5.09 < 0.001 Intercept -0.59-2.09-0.37-0.92GenderMale 0.28 -1.14-0.03< 0.05 0.19 Dieting (2) Management Level -0.120.07 -1.71-0.250.02 < 0.10 -0.11-0.250.02 GenderMale * 0.54 < 0.01 0.51 0.29 0.32 0.11 2.88 0.10 0.73 Management Level 4.88 5.14 0.13 38.38 5.40 < 0.001 Intercept 0.22 -2.06-0.87-0.02< 0.05 -0.36-0.79GenderMale -0.450.06 Oral Control -0.020.05 -0.30-0.12>0.05 -0.02-0.12Management Level 0.09 0.08 (3)GenderMale * 0.18 0.09 2.04 0.01 0.35 < 0.05 0.36 0.19 0.53 Management Level Intercept 4.83 0.38 12.61 4.085.58 < 0.001 -1.770.62 -2.86-2.99-0.55< 0.01 -0.5-1.72GenderMale 0.72 Supporting 0.25 0.02 -0.28Management Level 0.04 0.15 -0.260.33 >0.05 0.31 (4) GenderMale * 0.55 0.25 2.24 0.07 1.04 < 0.05 0.39 -0.090.88 Management Level Intercept 1.18 0.17 7.10 0.85 1.51 < 0.001 GenderMale 0.01 0.27 0.04 -0.520.54 >0.05 0.01 -0.520.53 Physical -0.13Management Level -0.130.06 -1.99-0.260.00 < 0.05 -0.26-0.01Activity (5) GenderMale * 0 0.00 0.11 -0.01-0.210.21 >0.05 -0.210.21 Management Level Intercept 6.52 0.70 9.32 5.147.89 < 0.001 Experience -0.080.03 -2.60-0.14-0.02< 0.01 -0.45-0.51-0.39Emo interest Management Level -0.720.30 -2.38-1.32-0.13< 0.05 -0.32-0.910.28 (6)Experience * 0.01 2.80 0.01 0.06 < 0.01 0.66 0.04 0.64 0.69 Management Level 6.74 0.60 11.22 5.56 7.93 < 0.001 Intercept -0.070.03 -2.62-0.12-0.02< 0.01 -0.45-0.5-0.39Health Experience interesting Management Level -0.620.26 -2.36-1.13-0.10< 0.05 -0.31-0.820.2 (7)Experience * 0.01 0.01 0.06 < 0.01 0.76 0.74 0.04 3.26 0.78 Management Level Intercept 5.85 0.70 8.36 4.47 7.23 < 0.001 0.03 -2.53-0.14-0.02< 0.05 -0.43-0.08-0.49-0.36Experience Motivating Management Level -0.730.30 -2.42-1.33-0.14< 0.05 -0.31-0.910.28 (8)Experience * 0.04 0.01 3.40 0.02 0.07 < 0.001 0.79 0.77 0.81 Management Level

All regression model estimates with two main effects and interactions are presented in Table 2.

Table 2. Estimates of regression models with interaction terms.

Dependent Variable	Variables in Model	В	s.e.	t	LCI	UCI	р	β	LCI2	UCI2
	Intercept	5.51	0.68	8.15	4.18	6.84	< 0.001			
Supporting	Experience	-0.06	0.03	-1.96	-0.12	0.00	<0.10	-0.33	-0.39	-0.27
(9)	Management Level	-0.60	0.29	-2.06	-1.18	-0.03	< 0.05	-0.27	-0.85	0.31
	Experience * Management Level	0.04	0.01	2.90	0.01	0.06	<0.01	0.68	0.65	0.7
	Intercept	1.04	0.19	5.33	0.65	1.42	< 0.001			
-	Experience	0.01	0.02	0.77	-0.02	0.05	>0.05	0.15	0.12	0.18
PA (10)	Management Level	-0.03	0.08	-0.35	-0.19	0.13	>0.05	-0.03	-0.19	0.13
-	Experience * Management Level	-0.01	0.01	-1.23	-0.02	0.00	>0.05	-0.27	-0.29	-0.26

Table 2. Cont.

4. Discussion

Taking care of the mental and physical health of both one's employees and oneself should be an important element in the life of every manager and, indeed, everybody in general. Employers have been increasingly focusing on supporting the mental health of employees, even before the pandemic [23]. Therefore, the main aim of this paper was to determine whether variables such as Gender, Experience, and Management Level influenced managers' healthy behaviors (eating attitudes and physical activity; PA) and soft skills during the COVID-19 pandemic. This study showed some significant results. First, there were gender differences in eating attitudes and certain social skills. Males were characterized by lower levels of all three scales of EAT-26 (Bulimia and Food Preoccupation, Oral Control, and Dieting) compared to females. It is important to note that neither the women nor the men who participated in this study were found to exhibit symptoms of eating disorders. However, it is crucial to emphasize that eating attitudes in this study were evaluated using the Eating Attitude Test (EAT-26), originally designed for clinical samples to assess the propensity toward eating disorders. Therefore, exercising caution when interpreting the results is imperative [18]. Nonetheless, male respondents who held high managerial positions were characterized by high levels of Dieting, Oral Control, Bulimia, and Food Preoccupation. This particular group of respondents indicated concerns about body weight, body shape, and eating that are stereotypically expressed by women because women's overall self-esteem is highly dependent on positive body image [24]. Though it should be noted that nowadays men attach greater importance to their appearance, which is also particularly emphasized in the corporate world, Taking care of oneself physically sets a good example for employees and is an indicator of self-control and success. On the other hand, the increasing emphasis on appearance in the corporate world, particularly among men, poses a range of challenges and concerns related to mental health, workplace culture, diversity and inclusion, productivity, and sustainability. These issues warrant careful consideration and proactive measures to ensure a balanced and equitable work environment [25,26]. Van der Put and Ellwardt [27] confirmed in their studies that healthy behaviors among both employers and colleagues can contribute to creating a culture of health in the workplace and support all employees in making healthy choices. Nickson's [28] description of the workplace environment emphasizes that today's society seems to be obsessed with physical attractiveness. In certain organizational contexts, the way you look can make the difference between being hired or fired. Upon contrasting the findings of our present study with those of other investigations that have delved into people's dietary behaviors amid the pandemic, a notable deduction emerges: the COVID-19 pandemic has the potential to trigger favorable transformations in individuals' eating habits. This supposition finds validation in data collected from a cohort of approximately 900 adults in the United States. Particularly

noteworthy is the observation that individuals of younger age and higher educational attainment, with a heightened emphasis on health considerations, display a heightened likelihood of adopting positive dietary modifications [29]. Moreover, an examination of parental healthy eating behaviors uncovers a substantial gender disparity: Fathers and males exhibit significantly greater involvement in health-conscious dietary practices. This discrepancy highlights the pandemic's overarching constructive impact on the assimilation of health-oriented dietary behaviors. This influence is encapsulated by its comprehensive effect on perceptions and behavioral patterns pertaining to dietary choices [30].

We also assumed that PA would differ between female and male respondents. However, men and women in the group of managers studied had the same levels of PA. This could be due to the current social trend of women and men having similar levels of PA and possibly dietary restrictions, as well as interventions and programs that increase PA and decrease sedentary time at work. A study by Pronk [31] points out that the workplace provides a range of opportunities for PA, using a social-ecological framework with five broad levels: personal, social, communication (including information technologies), physical, and political. The author suggests the workplace is a communal setting where these five broad levels intersect and where effective strategies and tactics work with women and men alike. On the contrary, the majority of studies indicate that there were differences between women and men in terms of their level of physical activity during COVID-19. It was found that males were more active than females and had distinct motivations for engaging in physical activity [32–34].

With regard to Experience and Management Level, there were a number of important observations in the current analysis. Managers with more experience and in higher positions had the strongest social skills, such as emotional and health concerns, as well as supportive and motivational attitudes toward their employees. This could be explained by their having developed a significant body of knowledge and strategies to help employees over the course of their careers be effective in difficult or crisis situations. Begtrup et al. [35], analyzing the impact of a manager-oriented intervention on the well-being of hospital and daycare workers, suggested that training managers in implementing an explicit and positive supportive approach would result in a better work environment and employee well-being. Herr et al. [36] found that ambivalent supervisor-employee relationships had an overall impact on depression, anxiety, vitality, and exhaustion among workers. At the individual and group levels, there was a consistent relationship between ambivalent leadership and higher levels of psychological distress. However, our assumptions were not confirmed: we found no effects of Experience and Management Level on PA levels. The participants in this study seemed very similar in this regard. Companies are putting more and more effort and focus into PA and exercise interventions in the workplace in order to improve work outcomes. The systematic review of White et al. [37] concluded that short and simple exercise and fitness programs, in particular, have an impact on absenteeism from work, work productivity, and financial outcomes.

This study has some limitations. There is no data concerning the character of the corporations the respondents were working for or their place of residence, which could have provided meaningful context and thereby revealed other significant correlations. This study may also have been limited by the fact that the data on PA were not very detailed; future research should look more closely at the exercise habits of the participants. Further research is needed to increase our knowledge of the relationships between these factors among managers in different industries. In particular, future research should focus on younger managers, who are understudied in the context of PA, social skills, and eating attitudes. For the quality of life of employees, this research has many benefits: improving the effectiveness and efficiency of managers can, in turn, improve employees' professional and domestic lives.

5. Conclusions

This study aimed to investigate the influence of Gender, Experience, and Management Level on managers' healthy behaviors and soft skills in the challenging context of the COVID- 19 pandemic. The findings revealed noteworthy insights. Gender differences were evident, with males exhibiting lower scores across various scales of eating attitudes, though without indicating any presence of eating disorders. Interestingly, male managers in high-ranking positions displayed higher levels of specific eating attitudes, raising concerns deserving of further exploration. Surprisingly, no significant gender disparities were detected in physical activity levels among the managers studied. Examining Experience and Management Level revealed significant patterns, as more experienced and higher-ranking managers demonstrated stronger social skills, including emotional support, health concerns, and motivational attitudes towards their employees. These insights can guide strategies to promote healthy behaviors and enhance soft skills among managers, fostering resilient and effective leadership in challenging times. However, further research is encouraged to deepen our understanding of these dynamics and their implications for workplace well-being.

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Institutional Review Board Statement: This study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Board for Research Projects at the Institute of Psychology, University of Gdańsk, the Ethics Board Opinion, in response to inquiry no. 33/2020 from 29 April 2020.

Informed Consent Statement: Informed consent was obtained from all subjects involved in this study.

Data Availability Statement: The data is available by contacting the second co-author of the study.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. COVID-19-related sample characteristics.

Characteristic	$N = 341^{1}$	
COVID		
I do not know	83/341 (24%)	
No	107/341 (31%)	
Yes	151/341 (44%)	
Diagnostics against COVID		
Lack opinion	19/341 (5.6%)	
No	200/341 (59%)	
Yes	122/341 (36%)	
Vaccinated		
lack intention	29/341 (8.5%)	
Three doses	218/341 (64%)	
Two doses	94/341 (28%)	
Mandatory vaccinations		
Lack opinion	53/341 (16%)	
No	87/341 (26%)	
Yes	201/341 (59%)	

¹ n/N (%).

Appendix **B**

The tables below present regression models for moderation effects controlling for COVID-19-related variables.

Table A2. Moderation effect of Gender and Management level for dieting and controlling for COVID-19-related variables.

		Dieting						
Predictors	Estimates	std. Beta	CI	Standardized CI	p	std. <i>p</i>		
(Intercept)	5.05	0.42	4.49–5.61	-0.22-1.06	< 0.001	0.194		
Gender [Male]	-0.51	0.25	-1.07-0.05	0.03–0.47	0.076	0.026		
Management level	-0.08	-0.08	-0.22-0.05	-0.22 -0.05	0.232	0.232		
COVID [No]	0.06	0.08	-0.16-0.29	-0.21- 0.37	0.571	0.571		
COVID [Yes]	0.03	0.04	-0.17 -0.24	-0.22-0.31	0.745	0.745		
Diagnostics against COVID [No]	-0.25	-0.32	-0.62-0.13	-0.80-0.16	0.193	0.193		
Diagnostics against COVID [Yes]	-0.44	-0.57	-0.820.05	-1.060.07	0.026	0.026		
Vaccinated [Three doses]	-0.20	-0.26	-0.57-0.16	-0.73-0.20	0.267	0.267		
Vaccinated [Two doses]	-0.20	-0.26	-0.55 - 0.14	-0.71 -0.18	0.242	0.242		
Mandatory vaccinations [No]	-0.02	-0.02	-0.31 -0.27	-0.40-0.35	0.897	0.897		
Mandatory vaccinations [Yes]	0.12	0.15	-0.13-0.36	-0.17 -0.47	0.358	0.358		
Gender [Male] × Management level	0.29	0.29	0.07–0.52	0.07–0.51	0.011	0.011		
Observations	341							
R ² /R ² adjusted	0.063/0.032							

Table A3. Moderation effect of Gender and Management level for Bulimia and Food Preoccupation and controlling for COVID-19-related variables.

	Bulimia and Foo Preoccupation	d				
Predictors	Estimates	std. Beta	CI	Standardized CI	p	std. p
(Intercept)	5.52	0.44	5.05-5.98	-0.20-1.09	< 0.001	0.175
Gender [Male]	-0.44	0.03	-0.90-0.03	-0.19-0.25	0.065	0.786
Management level	0.04	0.05	-0.07 - 0.15	-0.09-0.18	0.479	0.479
COVID [No]	0.06	0.09	-0.13 - 0.24	-0.20-0.38	0.531	0.531
COVID [Yes]	0.07	0.11	-0.10 - 0.24	-0.16-0.38	0.417	0.417
Diagnostics against COVID [No]	-0.19	-0.30	-0.50-0.12	-0.78-0.19	0.226	0.226
Diagnostics against COVID [Yes]	-0.24	-0.37	-0.55-0.08	-0.87-0.13	0.145	0.145
Vaccinated [Three doses]	-0.13	-0.20	-0.43 - 0.17	-0.67 -0.27	0.399	0.399
Vaccinated [Two doses]	-0.24	-0.38	-0.53 - 0.04	-0.83-0.06	0.093	0.093
Mandatory vaccinations [No]	-0.06	-0.09	-0.30-0.18	-0.47-0.28	0.635	0.635
Mandatory vaccinations [Yes]	0.04	0.07	-0.16-0.25	-0.25-0.39	0.679	0.679
Gender [Male] × Management level	0.19	0.23	0.00–0.37	0.01–0.45	0.045	0.045
Observations	341					
R^2/R^2 adjusted	0.052/0.020					

	Oral Control					
Predictors	Estimates	std. Beta	CI	Standardized CI	р	std. p
(Intercept)	5.23	0.15	4.80–5.66	-0.49- 0.80	< 0.001	0.641
Gender [Male]	-0.38	-0.01	-0.81-0.05	-0.24-0.21	0.083	0.898
Management level	-0.02	-0.02	-0.12-0.09	-0.16-0.12	0.762	0.762
COVID [No]	0.03	0.04	-0.15 -0.20	-0.25-0.34	0.767	0.767
COVID [Yes]	0.07	0.13	-0.08-0.23	-0.14 -0.40	0.358	0.358
Diagnostics against COVID [No]	-0.02	-0.04	-0.31-0.26	-0.53-0.45	0.880	0.880
Diagnostics against COVID [Yes]	-0.06	-0.11	-0.36-0.23	-0.61-0.40	0.675	0.675
Vaccinated [Three doses]	-0.18	-0.30	-0.46-0.10	-0.78-0.17	0.206	0.206
Vaccinated [Two doses]	-0.22	-0.38	-0.49 -0.04	-0.83-0.07	0.094	0.094
Mandatory vaccinations [No]	-0.01	-0.01	-0.23-0.21	-0.39-0.37	0.955	0.955
Mandatory vaccinations [Yes]	0.15	0.26	-0.04-0.34	-0.07-0.58	0.118	0.118
Gender [Male] × Management level	0.15	0.20	-0.02-0.33	-0.02-0.43	0.078	0.078
Observations	341					
R^2/R^2 adjusted	0.038/0.006					

Table A4. Moderation effect of Gender and Management level for Oral Control and controlling for COVID-19 related variables.

Table A5. Moderation effect of Gender and Management level for supporting and controlling for COVID-19 related variables.

	Supporting					
Predictors	Estimates	std. Beta	CI	Standardized CI	р	std. p
(Intercept)	4.42	-0.10	3.19–5.65	-0.73-0.54	< 0.001	0.764
Gender [Male]	-1.64	-0.28	-2.880.41	-0.500.06	0.009	0.014
Management level	0.06	0.03	-0.24 -0.36	-0.11-0.16	0.698	0.698
COVID [No]	0.04	0.02	-0.45 - 0.53	-0.27-0.31	0.883	0.883
COVID [Yes]	0.10	0.06	-0.35-0.56	-0.21-0.32	0.657	0.657
Diagnostics against COVID [No]	-0.07	-0.04	-0.89-0.75	-0.52-0.44	0.869	0.869
Diagnostics against COVID [Yes]	-0.21	-0.12	-1.06-0.63	-0.62-0.37	0.623	0.623
Vaccinated [Three doses]	-0.37	-0.22	-1.16-0.42	-0.68-0.25	0.359	0.359
Vaccinated [Two doses]	-0.01	-0.01	-0.77-0.74	-0.45-0.43	0.971	0.971
Mandatory vaccinations [No]	0.37	0.22	-0.26-1.01	-0.15-0.59	0.246	0.246
Mandatory vaccinations [Yes]	0.94	0.55	0.40–1.48	0.23–0.86	0.001	0.001
Gender [Male] × Management level	0.49	0.22	-0.01-0.98	-0.00-0.44	0.053	0.053
Observations	341					
R^2/R^2 adjusted	0.082/0.051					

	PA					
Predictors	Estimates	std. Beta	CI	Standardized CI	р	std. p
(Intercept)	1.18	0.01	0.64–1.72	-0.64-0.66	< 0.001	0.981
Gender [Male]	-0.03	-0.00	-0.57 -0.51	-0.23-0.22	0.910	0.983
Management level	-0.13	-0.13	-0.26-0.01	-0.27-0.01	0.061	0.061
COVID [No]	0.08	0.11	-0.13 -0.30	-0.18 -0.41	0.458	0.458
COVID [Yes]	0.07	0.10	-0.13 -0.27	-0.18-0.37	0.492	0.492
Diagnostics against COVID [No]	-0.03	-0.04	-0.39-0.33	-0.53-0.45	0.870	0.870
Diagnostics against COVID [Yes]	-0.03	-0.05	-0.40-0.34	-0.56-0.46	0.856	0.856
Vaccinated [Three doses]	-0.02	-0.02	-0.36-0.33	-0.50-0.46	0.932	0.932
Vaccinated [Two doses]	-0.00	-0.00	-0.33-0.33	-0.46-0.45	0.989	0.989
Mandatory vaccinations [No]	0.03	0.04	-0.25-0.30	-0.34-0.42	0.849	0.849
Mandatory vaccinations [Yes]	-0.05	-0.07	-0.28-0.19	-0.39-0.26	0.694	0.694
Gender [Male] × Management level	0.01	0.01	-0.20-0.23	-0.21-0.24	0.912	0.912
Observations	341					
R^2/R^2 adjusted	0.023/-0.009					

Table A6. Moderation effect of Gender and Management level for PA and controlling for COVID-19related variables.

Table A7. Moderation effect of Intership and Management level for Emo Interest and controlling for COVID-19 related variables.

	Emo Interest					
Predictors	Estimates	std. Beta	CI	Standardized CI	р	std. p
(Intercept)	3.92	0.05	2.32–5.53	-0.62-0.72	< 0.001	0.883
Internship [Short experience]	1.68	-0.00	0.33–3.03	-0.23-0.22	0.015	0.966
Management level	0.45	0.20	0.04–0.86	0.02–0.37	0.032	0.032
COVID [No]	0.05	0.03	-0.46-0.56	-0.27-0.32	0.852	0.852
COVID [Yes]	0.44	0.25	-0.03-0.91	-0.02-0.52	0.068	0.068
Diagnostics against COVID [No]	0.16	0.09	-0.69-1.02	-0.39-0.58	0.704	0.704
Diagnostics against COVID [Yes]	0.28	0.16	-0.60-1.16	-0.35-0.66	0.535	0.535
Vaccinated [Three doses]	-0.11	-0.06	-0.93 -0.72	-0.53 -0.41	0.802	0.802
Vaccinated [Two doses]	-0.22	-0.12	-1.00-0.57	-0.57 -0.32	0.588	0.588
Mandatory vaccinations [No]	-0.70	-0.40	-1.350.04	-0.770.02	0.037	0.037
Mandatory vaccinations [Yes]	-0.44	-0.25	-1.01-0.12	-0.58-0.07	0.123	0.123
Internship [Short experience] × Management level	-0.70	-0.31	-1.230.17	-0.540.08	0.009	0.009
Observations	341					
R^2/R^2 adjusted	0.045/0.013					

	Motivating					
Predictors	Estimates	std. Beta	CI	Standardized CI	р	std. p
(Intercept)	3.64	0.33	2.04-5.25	-0.33-0.99	< 0.001	0.321
Internship [Short experience]	1.53	-0.19	0.18–2.88	-0.41-0.03	0.027	0.092
Management level	0.71	0.31	0.30-1.12	0.13–0.48	0.001	0.001
COVID [No]	0.21	0.12	-0.31-0.72	-0.17 -0.40	0.430	0.430
COVID [Yes]	0.31	0.17	-0.16-0.78	-0.09-0.44	0.197	0.197
Diagnostics against COVID [No]	-0.14	-0.08	-0.99-0.72	-0.56-0.40	0.752	0.752
Diagnostics against COVID [Yes]	-0.13	-0.07	-1.01-0.75	-0.57-0.42	0.770	0.770
Vaccinated [Three doses]	-0.96	-0.54	-1.790.14	-1.000.08	0.022	0.022
Vaccinated [Two doses]	-0.49	-0.28	-1.28-0.29	-0.72-0.16	0.216	0.216
Mandatory vaccinations [No]	-0.31	-0.17	-0.96-0.35	-0.54-0.19	0.355	0.355
Mandatory vaccinations [Yes]	0.42	0.23	-0.15-0.98	-0.08-0.55	0.148	0.148
Internship [Short experience] × Management level	-0.77	-0.33	-1.300.25	-0.560.11	0.004	0.004
Observations	341					
R ² /R ² adjusted	0.081/0.050					

Table A8. Moderation effect of Intership and Management level for motivating and controlling for COVID-19 related variables.

Table A9. Moderation effect of Intership and Management level for Health Interesting and controlling for COVID-19 related variables.

	Health Interes	sting				
Predictors	Estimates	std. Beta	CI	Standardized CI	р	std. p
(Intercept)	4.03	-0.17	2.65-5.40	-0.83-0.49	< 0.001	0.609
Internship [Short experience]	1.64	-0.13	0.48–2.80	-0.35-0.09	0.006	0.240
Management level	0.58	0.29	0.23-0.93	0.12-0.47	0.001	0.001
COVID [No]	-0.02	-0.01	-0.45 - 0.42	-0.30-0.28	0.945	0.945
COVID [Yes]	0.20	0.13	-0.20-0.61	-0.13-0.40	0.323	0.323
Diagnostics against COVID [No]	0.49	0.32	-0.24-1.22	-0.16-0.81	0.185	0.185
Diagnostics against COVID [Yes]	0.63	0.42	-0.12-1.39	-0.08-0.91	0.101	0.101
Vaccinated [Three doses]	-0.08	-0.05	-0.79-0.63	-0.52 -0.41	0.821	0.821
Vaccinated [Two doses]	-0.23	-0.15	-0.90- 0.44	-0.60-0.29	0.494	0.494
Mandatory vaccinations [No]	-0.47	-0.31	-1.03-0.09	-0.68-0.06	0.099	0.099
Mandatory vaccinations [Yes]	-0.15	-0.10	-0.63- 0.34	-0.42-0.22	0.551	0.551
Internship [Short experience] × Management level	-0.76	-0.38	-1.210.31	-0.610.16	0.001	0.001
Observations	341					
R ² /R ² adjusted	0.070/0.039					

	Supporting						
Predictors	Estimates	std. Beta	CI	Standardized CI	р	std. p	
(Intercept)	3.09	-0.07	1.55-4.63	-0.72-0.59	< 0.001	0.843	
Internship [Short experience]	1.41	-0.18	0.12–2.71	-0.40-0.04	0.033	0.102	
Management level	0.63	0.28	0.24–1.03	0.11–0.46	0.002	0.002	
COVID [No]	0.03	0.02	-0.46-0.52	-0.27-0.30	0.906	0.906	
COVID [Yes]	0.16	0.09	-0.29-0.62	-0.17-0.36	0.483	0.483	
Diagnostics against COVID [No]	-0.03	-0.02	-0.85-0.79	-0.50-0.46	0.939	0.939	
Diagnostics against COVID [Yes]	-0.14	-0.08	-0.99-0.70	-0.58-0.41	0.741	0.741	
Vaccinated [Three doses]	-0.51	-0.29	-1.30-0.29	-0.76-0.17	0.210	0.210	
Vaccinated [Two doses]	-0.06	-0.04	-0.82-0.69	-0.48-0.40	0.867	0.867	
Mandatory vaccinations [No]	0.17	0.10	-0.46-0.80	-0.27-0.46	0.596	0.596	
Mandatory vaccinations [Yes]	0.81	0.47	0.27–1.35	0.16–0.79	0.004	0.004	
Internship [Short experience] × Management level	-0.72	-0.32	-1.220.21	-0.540.09	0.006	0.006	
Observations	341						
R ² /R ² adjusted	0.084/0.054						

Table A10. Moderation effect of Intership and Management level for supporting and controlling for COVID-19 related variables.

Table A11. Moderation effect of Internship and Management level for Physical Activity and controlling for COVID-19 related variables.

	PA					
Predictors	Estimates	std. Beta	CI	Standardized CI	р	std. p
(Intercept)	1.17	-0.20	0.52–1.83	-0.86-0.46	0.001	0.559
Internship [Short experience]	-0.17	0.43	-0.72-0.39	0.21–0.65	0.557	<0.001
Management level	-0.19	-0.19	-0.35 - 0.02	-0.370.02	0.030	0.030
COVID [No]	0.10	0.14	-0.11- 0.31	-0.15 -0.42	0.357	0.357
COVID [Yes]	0.07	0.09	-0.13-0.26	-0.17-0.36	0.500	0.500
Diagnostics against COVID [No]	-0.09	-0.13	-0.44-0.26	-0.61-0.35	0.606	0.606
Diagnostics against COVID [Yes]	-0.11	-0.15	-0.47-0.25	-0.65-0.35	0.556	0.556
Vaccinated [Three doses]	0.03	0.04	-0.31- 0.37	-0.42- 0.51	0.852	0.852
Vaccinated [Two doses]	0.01	0.02	-0.31 -0.34	-0.42-0.46	0.928	0.928
Mandatory vaccinations [No]	0.06	0.09	-0.20-0.33	-0.28-0.46	0.637	0.637
Mandatory vaccinations [Yes]	0.00	0.00	-0.23-0.23	-0.32-0.32	0.988	0.988
Internship [Short experience] × Management level	0.20	0.21	-0.02-0.41	-0.02-0.43	0.070	0.070
Observations	341					
R^2/R^2 adjusted	0.076/0.045					

Appendix C

Instruction: "We would like to invite you to participate in an international study on managers' health-seeking behavior (physical activity and diet) undertaken for the sake of good performance during the COVID-19 pandemic. The survey is being conducted by researchers from the Academy of Physical Education and Sport in Gdansk in cooperation with a number of scientific institutions around the world: https://clinicaltrials.gov/ct2/show/NCT04432038 (accessed on 30 April 2023). The time taken to complete the survey is approximately 15 min.

"Thank you for your time and commitment!"

Online survey—Part 1

Below are questions about your functions as a manager during the pandemic compared to the time before it. There are no right or wrong answers. All your answers are, of course, confidential; therefore, please be honest.

- Gender:
- (a) Female
- (b) Male
- (c) Non binary/third gender
- (d) I prefer not to answer
- (e) Other
 - 1. Total length of service in years:
 - 2. Seniority in management positions:
 - 3. Number of subordinates currently:
 - 4. What level of manager are you?
 - (a) First line (e.g., foreman, front line manager)
 - (b) Middle management (operational, e.g., shift leader, district manager)
 - (c) Top level (e.g., director, president, general manager)

5. Do you have the same confidence in your subordinates during a pandemic as you did before the pandemic?

1—definitely no; 7—definitely yes

6. During a pandemic, are you more concerned with the emotional lives of your employees than you were before it?

1-definitely no; 7-definitely yes

7. Are you more likely to motivate employees during a pandemic than before with words such as "you can do it" or "I believe in you"?

1—definitely no; 7—definitely yes

8. During a pandemic, do you ask employees more often than before, e.g., "What are you most afraid of?" or "How can I help you?"

1-definitely no; 7-definitely yes

9. During the pandemic, do your subordinates hear words of thanks and appreciation from you more often than before?

1—definitely no; 7—definitely yes

10. Has the pandemic made you more concerned about the health of your subordinates?

1—definitely no; 7—definitely yes

11. During the pandemic, compared to before it, was your interpersonal communication with employees effective?

1-definitely no; 7-definitely yes

12. Does it make it difficult for you to manage your menagerie online?

1-definitely no; 7-definitely yes

13. Has the pandemic time strengthened your 'soft' managerial skills in general?

1—definitely no; 7—definitely yes

14. Have you been ill with COVID-19?

Yes/No

15. Have you tested yourself for levels of antibodies to SARS-CoV-2?
Yes/No
16. Have you been vaccinated against COVID-19?
Yes/No
17. Do you think it should be mandatory to be vaccinated against COVID-19 in the management profession?
Yes/No

18. Are you concerned about infection with new coronavirus mutations? Yes/No

Online survey part 2—EAT-26

Instruction: Answers to the following questions will help us understand nutrition problems that require the attention of a specialist. Please fill out the below form as accurately, honestly, and completely as possible. There are no right or wrong answers. All of your responses are confidential.

Item		Always (1)	Usually (2)	Often (3)	Some- Times (4)	Rarely (5)	Never (6)
1.	Am terrified about being overweight.						
2.	Avoid eating when I am hungry.						
3.	Find myself preoccupied with food.						
4.	Have gone on eating binges where I feel that I may not be able to stop.						
5.	Cut my food into small pieces.						
6.	Aware of the calorie content of foods that I eat.						
7.	Particularly avoid food with a high carbohydrate content (i.e., bread, rice, potatoes, etc.)						
8.	Feel that others would prefer if I ate more.						
9.	Vomit after I have eaten.						
10.	Feel extremely guilty after eating.						
11.	Am preoccupied with a desire to be thinner.						
12.	Think about burning up calories when I exercise.						
13.	Other people think that I am too thin.						
14.	Am preoccupied with the thought of having fat on my body.						
15.	Take longer than others to eat my meals.						
16.	Avoid foods with sugar in them.						
17.	Eat diet foods.						
18.	Feel that food controls my life.						
19.	Display self-control around food.						
20.	Feel that others pressure me to eat.						
21.	Give too much time and thought to food.						
22.	Feel uncomfortable after eating sweets.						
23.	Engage in dieting behavior.						
24.	Like my stomach to be empty.						
25.	Have the impulse to vomit after meals.						
26.	Enjoy trying new rich foods.						

Online survey—part 3—IPAO

Instruction: In this questionnaire, we will ask you about the objectives of your involvement in physical activity and sports. The term physical activity (PA) is used here to describe these activities, which specifically require physical effort. Please be as honest as possible, because only genuine answers will be of scientific value to us!

1. Do you participate in classes (e.g., in a fitness club/gym)?

- 1. Yes
- 0. No
- 2. For how many times a month ?
- 3. Do you engage in physical activity (PA) on your own?
- 1. Yes
- 0. No
- 4. For how many times a month?

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