



VNIVERSITAT
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**Las características del puesto de trabajo como
antecedentes del bienestar y el rendimiento
laboral. El rol modulador de los patrones de
trabajo**

Tesis Doctoral

Doctorado en Psicología de los Recursos Humanos

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RESUMEN GLOBAL

Las Características del Puesto de Trabajo como Antecedentes del Bienestar y el Rendimiento Laboral. El Rol Modulador de los Patrones de Trabajo

Durante los últimos años se ha producido un cambio global significativo en la economía, que ha visto crecer el número de trabajadores que operan en entornos de oficinas (Haynes, 2008). Así pues, hoy en día, el trabajo en oficinas abarca gran parte de la vida laboral, siendo las oficinas el lugar donde más de la mitad de la población mundial pasa más del 90% de su jornada laboral (Vimalanathan y Babu, 2014). Además, la cantidad de horas que los trabajadores pasan en su lugar de trabajo también ha ido incrementando en los últimos años (Kroemer y Kroemer, 2017), lo que podría aumentar el efecto que el contexto físico de la oficina tiene sobre la salud (Moen, Kelly, Tranby, y Huang, 2011), el bienestar (Zábrowská et al., 2014), y la calidad de vida de los trabajadores (Securities, 2010). Además, cabe señalar que los espacios de trabajo adecuados ayudan a reducir las tasas de absentismo de los trabajadores, reducen la rotación del personal, y aumentan la productividad y la satisfacción de los ocupantes (US Green Building Council, 2004). Así pues, recientemente se ha señalado que un entorno de oficina óptimo puede incrementar la productividad hasta en un 20% (Clements-Croome, 2015).

Por otra parte, los espacios de trabajo “de oficina” también han experimentado fuertes transformaciones y una gran diversificación y desde hace varias décadas vienen apareciendo nuevas soluciones respecto al diseño de oficinas (World Green Building Council, 2014). Sin embargo, en torno a un 50% de los trabajadores afirma que su espacio de trabajo no es adecuado para el tipo de tareas que desempeñan (JLL Corporate Solutions, 2017). En consecuencia, algunos investigadores se han interesado por el estudio de distintos aspectos que podrían garantizar altos niveles de bienestar en el

trabajo (Vischer, 2003), lo que constituye un aspecto relevante de salud pública y ocupacional (Singh, Syal, Grady, y Korkmaz, 2010). Por todo ello, de acuerdo con el estudio europeo HOPE (HOPE, 2000), es necesario identificar y reducir riesgos del contexto físico laboral, con el objetivo de proporcionar un espacio de trabajo saludable (Bluyssen et al., 2016). De hecho, el objetivo de incrementar la calidad de vida laboral se ve reflejado en varios documentos de organismos internacionales. Así, la estrategia de Lisboa y en la de Europa 2020, enfatizan la necesidad de desarrollar el capital humano y social, al mismo tiempo que el rendimiento laboral, destacando así la importancia de mantener altos niveles de bienestar y de productividad (Hosie y Sevastos, 2009). Por su parte, las Naciones Unidas recogen estas cuestiones en los Objetivos de Desarrollo sostenible. Cabe referir aquí sobre todo el objetivo tercero (buena salud y bienestar) y el objetivo octavo (trabajo decente y crecimiento económico) de desarrollo sostenible de las Naciones Unidas (Naciones Unidas, 2018).

Bienestar Laboral

El concepto de bienestar puede ser entendido desde dos perspectivas independientes, aunque complementarias, que provienen de dos tradiciones filosóficas distintas (Ryan y Deci, 2001): la perspectiva hedonista, cuyo origen se sitúa en el trabajo de Aristipo de Cinere (435 – 356 a.c), y la perspectiva eudaimónica, que proviene de Aristóteles, quien consideraba que el bienestar no podía reducirse a la búsqueda del placer (Ryff, 1995). Adicionalmente, se puede distinguir salud como un tercer subcomponente del bienestar (Warr, 1990), que comprende la combinación de indicadores psicológicos (p.e., afecto o ansiedad) y fisiológicos (p.e., presión sanguínea o salud general física, ver Danna y Griffin, 1999).

Bienestar hedónico. Desde esta perspectiva el bienestar se focaliza en el placer y la experiencia de afecto positivo (Diener, 2000). En este sentido, se define bienestar en

términos de búsqueda de placer y evitación del dolor (Ryan y Deci, 2001). Este tipo de bienestar se operacionaliza principalmente como bienestar afectivo y como bienestar subjetivo (Peiró, Ayala, Tordera, Lorente, y Rodríguez, 2014). Por bienestar afectivo se entiende la experiencia frecuente de afecto positivo y la experiencia poco frecuente de afecto negativo (Diener y Larsen, 1993), mientras que el bienestar subjetivo refiere a evaluaciones de satisfacción con distintos aspectos de la vida (como la familia, el trabajo, etc., Dolan, Layard, y Metcalfe, 2011).

Bienestar eudaimónico. Esta perspectiva se centra en el significado y la autorrealización, y define bienestar como el ideal, en el sentido de la excelencia, de la perfección hacia la cual uno dirige sus esfuerzos, y le da sentido y dirección a su vida (Ryff, 1989). Incluye evaluaciones de auto-aceptación, propósito en la vida, crecimiento personal, etc. (Ryff y Singer, 2008). Dentro de esta perspectiva de bienestar, es importante destacar el concepto de flow que se define como una forma momentánea de bienestar eudaimónico (Fullagar y Kelloway, 2009) que se caracteriza por un estado o sensación holística donde la persona está tan inmersa en una actividad que nada más parece importarle (Csikszentmihalyi, 1990). Aunque algunos autores, principalmente del área emocional y/o motivacional, describen la experiencia de flow como una variante muy cercana al afecto positivo (Fredrickson, 1998), flow también se ha descrito en términos de bienestar eudaimónico apelando a aspectos como vitalidad, absorción, motivación intrínseca, etc. (Kashdan, Biswas-Diener, y King, 2008). Así, la literatura más reciente parece aceptar la absorción de flow como parte del bienestar eudaimónico (Huta, 2016; Roysamb y Nes, 2016; Watterman, 2007), puesto que se ha observado que las personas pueden experimentar flow incluso sin describir dicha experiencia como placentera (Csikszentmihalyi, 1999).

Hasta recientemente, el bienestar ha sido principalmente estudiado desde el punto de vista hedónico, prestando poca atención al bienestar eudaimónico de las personas. Sin embargo, a pesar de sus diferencias, hoy en día existe acuerdo al considerar la relevancia de estudiar y promocionar ambos tipos de bienestar (Delle Fave, Brdar, Freire, Vella-Brodrick, y Wissing, 2011; Vitterso, 2016). En concreto, en el contexto laboral, el bienestar ha sido definido como el estado afectivo que los empleados experimentan mientras trabajan (Robertson y Cooper, 2011). Así pues, ha sido principalmente conceptualizado como satisfacción laboral, aunque, como se ha comentado anteriormente, bienestar en el trabajo puede abarcar mucho más que eso (Fisher, 2010) (p.e., afecto positivo o negativo, engagement, propósito, significado, crecimiento personal, salud física).

Rendimiento Laboral

El rendimiento laboral se define como “una función del comportamiento de una persona y el grado en que este comportamiento ayuda a la organización a lograr sus objetivos” (Ford, Cerasoli, Higgins, y Decesare, 2011, p.187). Koopmans, Bernaards, Hildebrandt, Shaufeli, de Vet and van der Beek (2011), a partir de una revisión sistemática, elaboraron un modelo heurístico que incluía las 4 dimensiones principales de rendimiento: rendimiento in-role, rendimiento extra-role, rendimiento adaptativo y comportamientos contraproductivos.

Rendimiento in-role. Este tipo de rendimiento está intrínsecamente relacionado con las actividades que se incluyen en la descripción del puesto de trabajo (Williams y Anderson, 1991), y se define como “el valor total esperado de los comportamientos de un individuo durante un período estándar de tiempo para la producción de bienes y servicios organizacionales” (Motowidlo y Kell, 2012, p. 46).

Rendimiento extra-role. Este tipo de rendimiento está relacionado con comportamientos que no están directamente relacionados con las actividades que se incluyen en la descripción del puesto de trabajo (Moorman, Niehoff, y Organ, 1993), y se define como “comportamientos que apoyan el entorno organizativo, social o psicológico” de la organización (Koopmans et al., 2011, p.858).

Rendimiento adaptativo. El rendimiento adaptativo se define como el grado en que un trabajador se adapta a los cambios en el trabajo o a los distintos roles laborales (Griffin, Neal, y Parker, 2007).

Comportamientos contraproductivos. Incluye aquellos comportamientos llevados a cabo por los trabajadores que son perjudiciales para el bienestar de la organización (Rotundo y Sackett, 2002) e incluye conductas como absentismo, llegar tarde a trabajar, robos, etc. (Koopmans et al., 2011)

Si bien estas cuatro dimensiones capturan el amplio rango de comportamientos que constituyen el rendimiento laboral (Koopmans et al., 2011), Borman y Motowidlo (1997) señalaron que los aspectos centrales del rendimiento laboral están comprendidos en las dimensiones integrales de rendimiento in-role y rendimiento extra-role.

Estresores Ambientales como Antecedentes de Bienestar y Rendimiento Laboral

La psicología ambiental sugiere que el contexto físico en el que se desenvuelven las personas tiene un impacto en el comportamiento de las mismas (Mehrabian y Russell, 1974). De forma más específica, poniendo el foco en el área organizacional, el modelo de factores del ambiente de trabajo destaca la relación entre el ambiente físico del trabajo y distintos resultados organizacionales (Veitch, Charles, Farley, y Newsham, 2007). En esta línea, actualmente existe mucha literatura que ha estudiado el impacto de los estresores físicos en los empleados (ver Bluysen et al., 2011, para revisión), entendiendo dichos estresores ambientales en términos de la percepción que tienen los

trabajadores de la incomodidad en el ambiente interior (Lund, Labriola, Christensen, Bültmann, y Villadsen, 2006).

Por un lado, de acuerdo con el modelo transaccional (Lazarus y Folkman, 1984), los estresores percibidos como amenazantes pueden disminuir el bienestar (Jamal, 1999), aumentar el afecto negativo (Cavanaugh, Boswell, Roehling y Boudreau, 2000) y deteriorar la salud y el bienestar incrementando la presencia de síntomas como dolores de cabeza, e incluso enfermedades cardíacas (Spector, Dwyer, y Jex, 1988). De acuerdo con ello, la evidencia empírica señala que, varios factores relacionados con el edificio (p.e., sistema de ventilación o temperatura interior) han sido asociados con la prevalencia de síntomas de salud en sus ocupantes (p.e., irritación de los ojos o piel, dolor de cabeza, fatiga) (Fisk, 2000) y con su bienestar afectivo (Robertson y Cooper, 2011). Por ejemplo, la investigación empírica sugiere que trabajar expuesto a temperaturas muy altas o muy bajas aumenta las emociones negativas en los trabajadores (Lan, Lian, Pan y Ye, 2009); que la mala calidad del aire incrementa la probabilidad de experimentar emociones como enfado, irritación, frustración, tristeza, etc. (Klitzman y Stellman, 1989), afectando a la salud de sus ocupantes (Staw y Barsade, 1993). Además, algunos estresores ambientales como los vapores que producen algunos equipamientos de oficina (Wang, Ang, y Tade, 2007) y el polvo, son factores clave que han sido relacionados con distintos síntomas de salud (Rashid y Zimring, 2008) y enfermedades ocupacionales (Andersson, Stridh, Fagerlund, y Aslaksen, 2002). De hecho, se ha puesto de manifiesto que cuando se reducen los estresores físicos en el lugar de trabajo, las quejas relacionadas con salud física en los trabajadores disminuyen (Roelofsen, 2002).

Por otro lado, la teoría del estrés laboral de Lazarus (1994) propone que la forma en que los estresores son percibidos por las personas condicionará el impacto que dichos

estresores tengan sobre su comportamiento (Lazarus y Folkman, 1984). En este sentido, un contexto físico de oficina que ofrezca los recursos ambientales necesarios para las tareas que se han de llevar a cabo, puede ayudar a mejorar el rendimiento de los trabajadores (Vischer, 2007). En línea con estas ideas, la literatura sugiere que en torno a un 86% de los problemas de productividad residen en el ambiente físico de las organizaciones (Feige, Wallbaum, Janser, y Windlinger, 2013). Así pues, cabe constatar que diferentes aspectos del contexto físico ejercen un impacto en el rendimiento de los trabajadores. Por ejemplo, los niveles de rendimiento decrecen en condiciones de temperaturas extremas, tanto de frío como de calor (Lan, Wargocki, y Lian, 2011), cuando hay mala calidad del aire (Lee Young, 2014), o en contextos muy ruidosos (Ajala, 2012).

Tomando todo ello en consideración, se establece que condiciones ambientales inadecuadas en el contexto laboral pueden afectar tanto a los niveles de salud y bienestar de los trabajadores, como a la productividad laboral (Nurul, Shamsul, y Hassim, 2016). Sin embargo, aunque diferentes estudios han indicado que existe una relación entre estresores del espacio laboral y rendimiento (National Electrical Manufacturers Association, 1989; Roelofsen, 2002; Stokols y Scharf, 1990; Vischer, 2007), la relación entre algunas condiciones del contexto físico de trabajo y el rendimiento en el trabajo de oficina todavía no está del todo clara (Fisk, 2000). Por un lado, entender los estresores del contexto físico de trabajo requiere estudiar situaciones más específicas en las que se encuentren inmersos los empleados (p.e., diferentes configuraciones de las actividades laborales considerando el grado en que demandan mayores recursos del trabajador) con el objetivo de generar conocimiento sobre los tipos de situaciones que hacen a los trabajadores más o menos vulnerables a dichos estresores (Brief y George, 1995). Por otro lado, es posible que el bienestar medie la relación entre

la percepción de estresores físicos y el rendimiento laboral, puesto que: en primer lugar, como se ha mencionado anteriormente, la percepción de un entorno físico estresante afecta al bienestar del trabajador (Lazarus y Folkman, 1984), y, en segundo lugar, y como se describe en el siguiente punto, el bienestar de los trabajadores muestra relación con su rendimiento (Cropanzano y Wright, 2001).

De acuerdo con estas ideas, la teoría de la ampliación y de la construcción (Fredrickson, 2001) sugiere que las emociones positivas amplían el alcance de la atención y de los repertorios de pensamiento y acción, pudiendo así “construir” soluciones novedosas y creativas a los problemas. Así pues, la presente tesis doctoral se propone estudiar cómo la percepción de estresores físicos afecta al rendimiento laboral, así como estudiar el papel mediador de distintos indicadores de bienestar en esta relación, considerando las diferentes situaciones de los trabajadores (en términos del tipo de actividades laborales que desempeñan, considerando el grado en que demandan mayores recursos del trabajador).

Relación entre Bienestar y Rendimiento Laboral

Hoy en día las organizaciones son conscientes de que el rendimiento de sus trabajadores es esencial para el desarrollo e incluso la supervivencia de la organización (J. P. Campbell y Wiernik, 2015). En este sentido, las organizaciones buscan mejorar constantemente para ser competitivas (Chang y Huang, 2005). Por ello, la psicología organizacional se ha orientado hacia la necesidad de mejorar la calidad de vida de los trabajadores, favoreciendo así la consecución de unos niveles de bienestar y rendimiento laboral sostenibles a lo largo del tiempo (Peiró, Ayala, Tordera, Lorente, y Rodríguez, 2014).

Cuando se analiza la relación entre bienestar y rendimiento laboral, el marco de referencia principal es la tesis del trabajador productivo y feliz (Cropanzano y Wright,

2001). Este modelo apoya la idea de que, en igualdad de condiciones, los trabajadores felices muestran niveles más altos de comportamientos relacionados con el rendimiento laboral, que los trabajadores infelices (Wright, Cropanzano, Denney, y Moline, 2002).

Partiendo de estas ideas, una gran cantidad de estudios apoyan la idea de que la mejora del bienestar de los trabajadores podría incrementar sus niveles de rendimiento (Xanthopoulou, Bakker, Demerouti, y Schaufeli, 2009). La conceptualización más estudiada de bienestar cuando se analiza su relación con el rendimiento laboral es la satisfacción laboral, puesto que la literatura ha enfatizado la necesidad y/o el deseo de los trabajadores de estar satisfechos con su trabajo (Perrow, 1986). Sin embargo, la veracidad de la tesis del trabajador productivo y feliz todavía permanece en duda por distintas razones (Wright et al., 2002). En primer lugar, la literatura refleja una limitación en los estudios que analizan esta relación, puesto que generalmente se han focalizado en bienestar hedónico (p.e., satisfacción laboral o bienestar afectivo en relación al trabajo) a expensas del bienestar eudaimónico (p.e., significado de trabajo, ver Peiró, Ayala, Tordera, Lorente, y Rodríguez, 2014). En segundo lugar, algunos metaanálisis han señalado relaciones débiles, e incluso no significativas entre bienestar y rendimiento laboral (A. Bowling, 2007; Iaffaldano y Muchinsky, 1985; Judge, Thoresen, Bono, y Patton, 2001). En tercer lugar, algunos estudios empíricos sugieren que variables moderadoras podrían afectar a la fuerza de la relación entre bienestar y rendimiento laboral (Fogaça y Coelho, 2016; Rego, 2009; Warr, 2007). Estos factores moderadores pueden incluir distintas características relacionadas con el trabajo que podrían afectar algunos resultados organizacionales (Baron y Tang, 2011; N. A. Bowling, 2010; Gyekye y Haybatollahi, 2015; Ibrahim, Al Sejini, y Al Qassimi, 2004). En la presente tesis doctoral se estudia como distintas configuraciones de características relacionadas con el trabajo (i.e., patrones de trabajo) podrían afectar a la relación entre

bienestar y rendimiento laboral. De este modo, se contribuye a la mejora y mayor elaboración de la tesis del trabajador productivo y feliz a través de la identificación de posibles variables que condicionen, potencien o limiten la relación entre el bienestar y el rendimiento laboral de los trabajadores de oficina. Todo ello partiendo de una amplia conceptualización del bienestar y del rendimiento, que tiene en cuenta distintas perspectivas considerando así el aspectos multifacético o multidimensional del constructo.

Los Patrones de Trabajo y su Rol Moderador entre el Entorno y el Bienestar y Rendimiento de los Trabajadores

Las diferentes formas en que es diseñado el trabajo de los empleados ha captado la atención de muchos científicos durante los últimos años (Morgeson y Humphrey, 2006). De forma más específica, ha sido objeto del interés las formas en que se ha venido diseñando el trabajo en las oficinas. Diversas aportaciones han identificado una serie de actividades laborales que suelen incluirse en múltiples trabajos de oficina: la obtención de información (p.e., observación), procesamiento mental (p.e., análisis de datos), producción de información (p.e., documentación de información), y interacción con otros (p.e., comunicación con supervisores o subordinados) (Hansen et al., 2014). Los primeros tres tipos de actividades suelen venir determinados por el grado de complejidad de la tarea, que refiere a una experiencia psicológica, una interacción entre la tarea y las características de la persona que depende de características objetivas de la tarea (R. C. Campbell, 1988). Por otro lado, la última actividad se caracteriza por la cantidad y el tipo de interacción con otras personas en el trabajo, que refiere al grado en que las actividades requieren comunicarse con otros (p.e., supervisores o subordinados) (Hansen et al., 2014). En base a estas dos dimensiones (complejidad de tarea e

interacción con otras personas en el trabajo), en la presente tesis doctoral se proponen cuatro tipos de patrones de trabajo, cuyas formas “teóricamente puras” son: 1) No interactivo, alta complejidad, 2) No interactivo, baja complejidad, 3) Interactivo, alta complejidad, y 4) Interactivo, baja complejidad. Por lo tanto, se utiliza el concepto de *patrones de trabajo* para hacer referencia a diferentes configuraciones de las actividades laborales considerando las dimensiones referentes a la complejidad de la tarea y la interacción con otras personas en el trabajo. La identificación de los patrones de trabajo puede ser útil para el diseño apropiado del contexto físico de trabajo, y va a permitir identificar las condiciones óptimas que favorezcan el bienestar y el rendimiento laboral en cada uno de esos patrones de trabajo.

En la literatura se ha puesto de manifiesto que existe una relación entre el bienestar y el rendimiento de los trabajadores y el grado en que éstos deben interactuar con otras personas durante su jornada laboral (Párraga y García, 2005) y/o desempeñar tareas complejas (Griffiths y Boyce, 1971). Sin embargo, el trabajo en oficinas se compone de tareas multidimensionales (p.e., tareas interactivas y, a su vez, complejas), por ello, con el objetivo de aproximarnos en mayor medida a la realidad del trabajo de los diferentes trabajadores, es necesario estudiar diferentes combinaciones de las distintas variables (i.e., patrones de trabajo) superando las limitaciones de los estudios que han considerado estas variables de forma aislada. De acuerdo con estas ideas, la teoría de la activación (Scott, 1966) sugiere que el nivel de activación de una persona está directamente relacionado con la intensidad, variación, incertidumbre, y significado del estímulo; por lo tanto, a más fuentes de estímulo, mayor nivel de activación. Así pues cabe esperar que, cuando un trabajador tiene que desempeñar tareas complejas que requieren un esfuerzo adicional, o tiene que interactuar con otras personas en el trabajo (en otras palabras, tiene un patrón de trabajo más demandante) y, al mismo tiempo,

tiene que trabajar en un contexto físico altamente exigente debido a estresores ambientales, el nivel de activación óptimo podría ser excedido debido a falta de habilidad para manejar todos estos estresores. Ese exceso de demandas, en especial si no se dispone de los recursos adecuados para afrontarlas con eficacia, podría disminuir su bienestar y su rendimiento. En todos estos procesos, juegan pues un papel importante la caracterización de los patrones de trabajo. La presente tesis doctoral se propone estudiar el rol moderador que los patrones de trabajo puedan ejercer entre la percepción de estresores físicos y el bienestar y el rendimiento laboral.

(Des)Ajuste entre Patrones de Trabajo y Tipo de Oficina

El interés por los efectos de los espacios de trabajo sobre el bienestar y el rendimiento de los trabajadores ha ido creciendo durante las últimas décadas en la psicología de las organizaciones, aumentando así la evidencia que señala que el espacio de trabajo afecta al rendimiento de los trabajadores (Vischer, 2007). Por ello, es importante reconocer que el tipo de oficina ejerce influencia en diferentes resultados laborales, que incluyen el bienestar y el rendimiento (Danielsson, 2010; Jahncke, 2012). Cuando se habla de diferentes espacios de de oficinas, desde la perspectiva del trabajo humano, las necesidades de los empleados deben ser el foco principal de interés (Neufert, 2013). La literatura apoya la idea de que los contextos de trabajo diseñados tomando en consideración los tipos de actividades que los trabajadores desempeñan en esos contextos, ejercen un impacto positivo en los resultados laborales (Gerdenitsch, Korunka, y Hertel, 2017). Por todo ello, las organizaciones deben ofrecer las condiciones adecuadas para desempeñar las tareas laborales en los entornos de oficina (Danielsson, 2010).

Para analizar esas oficinas como espacios de trabajo, se han proporcionado diversas tipologías entre las que cabe destacar (Cabello, 2016) la propuesta por Neufert (1995). Este autor distingue tres tipos principales de oficina, sugiriendo que cada una de ellas es adecuada para diferentes tipos de trabajo:

Oficinas celulares. Pueden ser subdivididas en oficinas individuales o de pequeños grupos. La primera de ellas está normalmente compuesta por una o dos personas, mientras que la segunda está compuesta por hasta cuatro o seis personas (Gottschalk, 1994). Ambas son apropiadas para tareas que exigen altos niveles de concentración. Asimismo, las oficinas individuales son adecuadas para trabajo independiente o que requiera poco grado de interacción con otras personas, mientras que las oficinas para pequeños grupos son óptimas para trabajadores que requieren altos niveles de interacción con otros (Neufert, 1995).

Oficinas de grupo. Normalmente están compuestas por entre 3 y 20 lugares de trabajo (Gottschalk, 1994). Este tipo de oficinas es adecuado para grupos de trabajadores que necesitan un intercambio de información constante (pero no equipos demasiado grandes) que desempeñan tareas con altas demandas cognitivas (Neufert, 1995).

Oficinas abiertas. Generalmente comprenden más de 20 lugares de trabajo (Gottschalk, 1994), y son apropiadas para diferentes tipos de trabajo. En primer lugar, este tipo de oficinas son recomendables para grandes equipos que requieren interacción constante y que llevan a cabo tareas monótonas sin mucha demanda cognitiva (Neufert, 1995). En segundo lugar, también se consideran apropiadas para trabajo individual rutinario con bajos niveles de interacción (Laing, Duffy, Jaunzens, y Willis, 2004).

Así pues, esperaríamos un ajuste entre (Figura 1): 1) oficinas individuales celulares y patrones de trabajo caracterizados por bajos niveles de interactividad y altos niveles de complejidad (“No-interactivo, alta complejidad”), 2) oficinas de grupo o pequeños grupos y el patrón “Interactivo, alta complejidad”, y 3) oficinas abiertas y los patrones de trabajo “No-interactivo, baja complejidad” e “Interactivo, baja complejidad”.

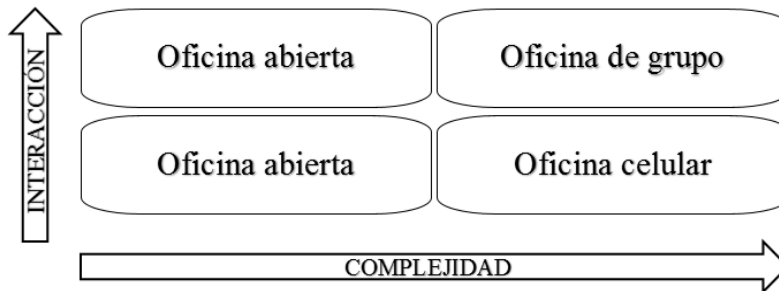


Figura 1. Ajuste entre Patrón de trabajo y Tipo de oficina

Partiendo de la idea de un posible ajuste entre espacios de oficina y patrones de trabajo, podemos identificar dos grupos de trabajadores de oficina: “ajuste” y “desajuste”. El grupo “ajuste” estaría compuesto por empleados que trabajan en una oficina adecuada para su patrón de trabajo, mientras que el grupo “desajuste” incluiría aquellos empleados que trabajan en oficinas que no son apropiadas para su patrón de trabajo.

En este sentido, el (des)ajuste entre tipos de oficina y patrones de trabajo podría ofrecer una nueva explicación en torno a las diferencias en procesos organizacionales y resultados laborales. De hecho, la investigación apoya la idea de que el grado de adecuación entre el espacio de trabajo (p.e., tipo de oficina) y las actividades de los trabajadores, entendidas como las tareas que deben desempeñar (p.e., patrones de trabajo), pueden tener un impacto en los resultados laborales (Vischer, 2007).

Así pues, de acuerdo con el modelo de Demandas-Recursos laborales (Bakker y Demerouti, 2007), los recursos ambientales (p.e., tipo de oficina adecuado) son aspectos

físicos del contexto de trabajo que son funcionales para la consecución de metas laborales y para la reducción de la influencia de demandas de trabajo indeseables (p.e., patrones de trabajo altamente demandantes) (Bakker y van Woerkom, 2017). Este modelo sugiere que los resultados laborales óptimos (p.e., rendimiento) surgen del equilibrio entre demandas hacia los empleados (p.e., patrones de trabajo) y los recursos que ellos tienen a su disposición (p.e., tipo de oficina adecuado) (Bakker y Demerouti, 2007). Además, la investigación ha señalado que los trabajadores que perciben mayor ajuste entre sus tipos de tareas (demandas laborales externas) y su ambiente de trabajo (recursos externos) se sienten más apoyados por su espacio de trabajo y se benefician más del concepto de oficina que aquellos que perciben menor ajuste (Gerdenitsch, Korunka y Hertel, 2017). Por ejemplo, los empleados que trabajan en espacios tranquilos cuando desempeñan tareas complejas, estarán menos distraídos que los empleados que están en contextos ruidosos (Seddigh, Berntson, Danielson y Westerlund, 2014).

Asimismo, algunos autores (Rego, 2009; Warr, 2007) han sugerido que variables moderadoras pueden afectar a la fuerza de la relación entre bienestar y rendimiento. Teniendo en cuenta estas ideas, tanto los patrones de trabajo, como el efecto del (des)ajuste entre patrones de trabajo y tipo de oficina pueden ofrecer posibles explicaciones a los resultados inconsistentes obtenidos respecto a la tesis del trabajador productivo y feliz. En este sentido, gran cantidad de literatura ha indicado una relación positiva entre estas variables; sin embargo, tener un tipo de oficina adecuado para el tipo de tareas que se desempeñan podría aumentar la fuerza de esta relación. Este hecho podría ser explicado por la teoría del intercambio social (Blau, 1964), que asume la norma de la reciprocidad, en la que los beneficios recibidos por una parte (p.e., recursos ambientales como una oficina adecuada) generan sentimientos de obligación para

responder de una forma positiva (p.e., rendimiento) a las demandas de la otra parte involucrada en el intercambio.

Así pues, las principales contribuciones teóricas de la presente tesis doctoral van desde la conceptualización teórica de los patrones de trabajo, hasta el estudio del grado en que dichos patrones pueden tener requerimientos ambientales más específicos. En este sentido, se espera que, por ejemplo, cada patrón de trabajo pueda suponer diferente tipo de estresor y, por tanto, pueda responder de forma distinta a los estresores ambientales (i.e., se vea más o menos afectado por los estresores, o por vías distintas), así como requerir un tipo de oficina concreto. Asimismo, también se analiza el rol que estas variables desempeñan en la relación entre bienestar y rendimiento laboral. De ese modo, se pretende poner a prueba el rol modulador del ajuste entre patrones de trabajo y tipo de oficina en la relación entre distintos indicadores de bienestar y de rendimiento laboral, enriqueciendo así la tesis del trabajador productivo y feliz (Wright et al., 2002). Además, el (des)ajuste entre patrones de trabajo y tipos de oficina podría suponer una nueva aplicación del modelo de demandas – recursos laborales (Bakker y Demerouti, 2007) y de la teoría del ajuste persona – ambiente (Caplan, 1987), cuando ésta se refiere a la importancia del ajuste entre las necesidades de las personas y los suministros del ambiente (Cable y DeRue, 2002), considerando dimensiones relacionadas con el tipo de actividades que desempeñan los trabajadores (complejidad e interacción con otros).

Aspectos metodológicos sobre los constructos centrales.

Adicionalmente, cabe destacar que el bienestar (Sonnetag, 2015) y el rendimiento laboral (Roe, 2014) son variables de “estado” que cambian a lo largo del tiempo. La mayoría de los estudios que han analizado dichas variables y sus consecuentes han adoptado diseños transversales (Skakon, Nielsen, Borg, y Guzman, 2010). En este sentido, los modelos multinivel de ecuaciones estructurales permiten analizar desde un

punto de vista más complejo las relaciones entre estas variables (Bolger, Davis, y Rafaeli, 2003). Teniendo todo esto en consideración, la presente tesis doctoral tiene su foco en un estudio de diario, que permite centrar la atención en los estados de dichas variables, que cambian a lo largo del tiempo, y que por tanto reflejan como un individuo se siente en un momento determinado (Xanthopoulou, Bakker, Demerouti, y Schaufeli, 2009). Así pues, las medidas repetidas de los estudios de diario pueden ser consideradas como multinivel (Klein y Kozlowski, 2000) puesto que se dispone de datos en dos niveles distintos: el nivel “tiempo” y el nivel “persona”, con los datos del nivel tiempo anidados en el nivel persona. De ese modo, los diseños de diario permiten controlar la variabilidad de las variables reduciendo el error de medida (incrementando así la fiabilidad y la validez) (Xanthopoulou, et al., 2009) y analizar posibles relaciones dinámicas a través de modelos de crecimiento latente (Ployhart y Vandenberg, 2010).

Objetivos de la Tesis

Así pues, el objetivo general de la presente tesis doctoral es estudiar la relación entre el contexto físico de la oficina, y el bienestar y el rendimiento de los empleados que trabajan en ellas, y cómo esta relación está modulada por los patrones de trabajo. Dicho objetivo general se desglosa en los siguientes objetivos específicos:

Objetivo Específico 1. Definir los patrones de trabajo en función de las actividades desempeñadas por los empleados de oficinas.

Objetivo Específico 2. Estudiar el efecto que los estresores físicos del contexto de trabajo tienen sobre el bienestar y el rendimiento de los trabajadores de oficinas

Objetivo Específico 3. Estudiar el rol modulador de los patrones de trabajo en la relación entre estresores físicos del contexto de trabajo y el bienestar y el rendimiento de los trabajadores.

Objetivo Específico 4. Definir qué tipo de oficina es más adecuada para cada uno de los patrones de trabajo

Objetivo Específico 5. Estudiar el rol modulador del ajuste entre patrones de trabajo y tipo de oficina en la relación entre el bienestar y el rendimiento laboral.

Objetivo Específico 6. Analizar la influencia del ajuste entre patrones de trabajo y tipo de oficina en el bienestar y el rendimiento laboral.

Estructura de la Tesis

Para ello, se diseñaron 5 estudios de investigación que abarcaban dichos objetivos. La presente tesis doctoral parte de un artículo de conceptualización teórica que pone de manifiesto la necesidad de estudiar los patrones de trabajo (Soriano, Kozusznik, y Peiró, 2015).

A continuación se presenta un estudio transversal con más de 1000 participantes que permite poner a prueba la relación entre la percepción de estresores físicos y uno de los principales indicadores del rendimiento laboral (i.e., absentismo), en distintos patrones de trabajo (Soriano, Kozusznik, y Mateo, 2018).

El tercer estudio (Soriano, Kozusznik, y Peiró, 2018) cuenta con un diseño de diario que permite analizar más a fondo la relación entre la percepción de estresores físicos y el rendimiento laboral, utilizando modelos de ecuaciones estructurales multinivel y multigrupo (i.e., patrones de trabajo).

El cuarto estudio (Soriano, Kozusznik, Peiró, y Mateo, 2018) pone a prueba, también desde una aproximación multinivel, el rol moderador del (des)ajuste entre patrones de trabajo y tipo de oficina, en la relación entre distintos tipos de bienestar y de rendimiento laboral.

Finalmente, el quinto estudio (Soriano, Kozusznik, Peiró, y Demerouti, sometido) se orienta al análisis más en detalle de una de las relaciones encontradas en el estudio

anterior: la relación entre flow y rendimiento laboral. Para ello se recurre a modelos de crecimiento latente que permiten estudiar relaciones dinámicas entre variables.

Resultados principales

En primer lugar, en el artículo de conceptualización teórica (Soriano et al., 2015) se destaca la necesidad de estudiar los patrones de trabajo en relación con distintos resultados laborales como el bienestar o el rendimiento de los trabajadores.

En segundo lugar, los resultados del estudio transversal (Soriano, Kozusznik, y Mateo, 2018) muestra, a partir de análisis de regresiones jerárquicas de los efectos directos e indirectos, que los trabajadores que desempeñan tareas interactivas que además requieren altos niveles de complejidad, se ven afectados por los estresores ambientales de la oficina a través de más canales indirectos, y ello afecta a su tasa de absentismo. En concreto, el patrón interactivo, baja complejidad presenta una triple mediación entre la percepción de un ambiente pobre y la tasa de absentismo de los trabajadores a través de satisfacción laboral, bienestar afectivo y salud. Por su parte, el patrón no-interactivo, baja complejidad muestra además de dicha triple mediación, una doble mediación a través de satisfacción laboral y salud. En cuanto al patrón no-interactivo, alta complejidad, éste presenta, además de dichas doble y triple mediaciones, otra doble mediación a través de bienestar afectivo y salud. Finalmente el patrón interactivo, alta complejidad, presenta una mediación simple a través de satisfacción laboral, dos dobles mediaciones: una a través de satisfacción laboral y salud, y otra a través de satisfacción laboral y bienestar afectivo. En este caso, también la triple mediación a través de satisfacción laboral, bienestar afectivo y salud fue significativa.

En tercer lugar, los resultados del tercer artículo (Soriano, Kozusznik, y Peiró, 2018), a partir de modelos multinivel de ecuaciones estructurales, sugieren también que

dicha percepción de estresores ambientales en la oficina afecta al rendimiento general de los trabajadores que desempeñan tareas complejas e interactivas, a través de la experimentación de síntomas de salud y las emociones negativas. Sin embargo, esta mediación no es significativa para el resto de patrones de trabajo.

En cuarto lugar, cuando hablamos de ajuste entre patrones de trabajo y tipo de oficina (Soriano, et al., 2018), llevando a cabo regresiones lineales multinivel y multigrupo, los resultados muestran que existe una asociación positiva entre distintos indicadores de bienestar y distintos indicadores de rendimiento: flow y rendimiento in-role, emociones positivas y rendimiento in-role, emociones positivas y rendimiento extra-role, y significado de tarea y rendimiento extra-role. Sin embargo en el grupo de desajuste entre patrones de trabajo y tipo de oficina la única relación positiva fue entre flow y rendimiento in-role.

Finalmente, al analizar más en detalle la relación dinámica entre flow y rendimiento in-role y extra-role (Soriano, et al., sometido), a través de modelos de crecimiento latente, los resultados indicaron que los niveles iniciales de flow se asocian positivamente con los niveles iniciales de rendimiento in-role y extra-role. Asimismo, el cambio el flow también se asoció de forma positiva con el cambio en rendimiento in-role y extra-role. Sin embargo, cuando hablamos del papel del ajuste entre patrones de trabajo y tipo de oficina esta variable no ejerce un papel modulador en la relación entre flow y rendimiento (como se proponía en el estudio anterior), sino que ejerce un papel predictor sobre los niveles iniciales de flow y, de forma indirecta, sobre los niveles iniciales de rendimiento in-role (aunque no sobre extra-role).

Conclusiones y Principales Aportaciones

Los trabajadores de oficina pasan mucho tiempo en su lugar de trabajo (Kroemer y Kroemer, 2017) y a lo largo de los últimos años la literatura ha remarcado el hecho de que la adecuación de los espacios de trabajo puede influir en distintos resultados laborales (Vischer, 2007). En este sentido, todavía son muchos los trabajadores que indican que su espacio de trabajo no se ajusta a las necesidades de sus tareas (JLL Corporate Solutions, 2017). Por ello, es necesario proporcionar un espacio de trabajo saludable (Bluyssen et al., 2016), que potencie el desarrollo del capital humano y social, al mismo tiempo que el rendimiento laboral (Hosie y Sevastos, 2009).

El objetivo de la presente tesis doctoral era estudiar la relación entre el contexto físico, y el bienestar y el rendimiento de los empleados que trabajan en oficinas, y cómo esta relación está modulada por los patrones de trabajo.

De los resultados derivan importantes conclusiones. En primer lugar, es necesario considerar el rol de los patrones de trabajo puesto que cada patrón tiene requerimientos ambientales específicos. Aquellos trabajadores que desempeñan tareas interactivas y complejas se ven afectados por los estresores físicos ambientales (p.e., temperatura, ruido) a través de más vías indirectas (a nivel cognitivo y a nivel afectivo). En este sentido, siguiendo la teoría de la activación (Scott, 1966), cuando un trabajador tiene un patrón de trabajo más demandante, y al mismo tiempo, tiene que trabajar en un contexto físico altamente exigente debido a estresores ambientales, el nivel de activación óptimo podría ser excedido debido a falta de habilidad para manejar todos estos estresores, lo que podría disminuir el rendimiento del empleado. Así pues, se pone de manifiesto la necesidad de que se optimice el contexto físico de los trabajadores de oficina prestando especial atención a las necesidades de los trabajadores en términos de sus patrones de trabajo.

En segundo lugar, en la presente tesis doctoral se planteaba la necesidad de considerar el ajuste entre dichos patrones de trabajo y los distintos tipos de oficina. En este sentido, se ha puesto de manifiesto que dicho ajuste ejerce un papel modulador en la relación entre distintos indicadores de bienestar y de rendimiento laboral. De este modo, se ha enriquecido la tesis del trabajador productivo y feliz (Wright et al., 2002), puesto que se ha señalado que distintos indicadores de bienestar se asocian positivamente con distintos indicadores de rendimiento solo cuando existe un ajuste entre el patrón de trabajo y el tipo de oficina.

En cuanto a la relación entre el flow y el rendimiento in-role, el ajuste entre patrones de trabajo y tipos de oficina no ejerce un papel moderador (ya que esta relación es positiva tanto en el caso de ajuste como en el caso de desajuste), ahora bien, ejerce un papel predictor directo de los niveles de flow, e indirecto de los niveles de rendimiento in-role. De esa manera, se ha puesto de manifiesto que el (des)ajuste entre patrones de trabajo y tipos de oficina encaja con la conceptualización del modelo de demandas – recursos laborales (Bakker y Demerouti, 2007) y con la teoría del ajuste persona – ambiente (Caplan, 1987), cuando refiere a la necesidad de ajuste entre las necesidades de las personas y los suministros del ambiente (Cable y DeRue, 2002). En este sentido, se concluye que los resultados laborales óptimos (p.e., rendimiento) surgen del equilibrio entre necesidades o demandas de los empleados (p.e., patrones de trabajo) y los recursos que se les ofrecen (p.e., tipo de oficina adecuado) (Bakker y Demerouti, 2007).

En suma, con la presente tesis doctoral se añade una nueva aplicación de dichas teorías a la literatura, al tener en cuenta distintas características del tipo de actividades que desempeñan los trabajadores (complejidad e interacción con otros).

Por último, cabe señalar como implicación práctica, que las organizaciones han de ofrecer espacios de oficina óptimos (en términos de condiciones ambientales y de tipo de oficina). Los espacios deben ser construidos y (re)organizados teniendo en cuenta las necesidades de los trabajadores en términos de sus patrones de trabajo, favoreciendo así el incremento de su bienestar, y la consecución de buenos niveles de bienestar y rendimiento laboral sostenibles a lo largo del tiempo. Es importante pues, invertir esfuerzos en la creación y acondicionamiento de oficinas adecuadas para las actividades que se han de desarrollar en ellas, favoreciendo la participación de los trabajadores en las decisiones sobre su área de trabajo, puesto que el tipo de tarea que se desempeña ha de tenerse en cuenta a la hora de organizar y/o acondicionar una oficina que realmente satisfaga sus necesidades. Además, la organización también ha de promover la conciencia de los empleados sobre las implicaciones de su lugar de trabajo facilitando que ellos mismos ajusten su organización del mismo en función de los recursos disponibles en cada momento (p.e., si comparten despacho con un grupo grande de compañeros, quizá pueden programar el desempeño de sus tareas más complejas durante las horas menos frecuentadas del día).

En definitiva, con la presente tesis doctoral se concluye que la construcción y/u organización de los espacios de oficina teniendo en cuenta el tipo de patrón de trabajo que desempeña cada empleado, supone beneficios tanto a nivel individual (incremento del bienestar laboral), como a nivel organizacional (incremento del rendimiento).

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ESTUDIO 1

**BENESTAR I RENDIMENT LABORAL EN
EMPLEATS D'OFICINES. EL ROL DELS
PATRONS DE TREBALL**

Soriano, A., Kozusznik, M. i Peiró, J.M. (2015) Benestar i rendiment en empleats d'oficines. El rol dels patrons de treball. *Anuari de Psicologia de la SVP*, 195-202

Benestar i rendiment laboral en empleats d'oficines. El rol dels patrons de treball

Bienestar y rendimiento laboral en empleados de oficinas. El rol de los patrones de trabajo

Welfare and labour performance in employees of offices. The role of the patterns of work

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L'objectiu d'aquest treball és posar de manifest la importància d'estudiar els patrons de treball que tenen en compte les diferents activitats que els empleats en oficines duen a terme al seu lloc de treball i, per tant, contribuir a un disseny més adequat del context i/o contingut i a assegurar unes condicions més adequades, per a un bon rendiment.

Hi ha diverses estratègies per a determinar aquests patrons i en el present treball advoquem per la consideració de la complexitat del treball i el grau i tipus de relació amb altres rellevants (p. ex., companys de treball o usuaris i clients). Es destaca la necessitat d'estudiar el paper d'aquests patrons de treball com a antecedent de dos criteris bàsics de la recerca en psicologia del treball i les organitzacions: l'acompliment laboral i el benestar i la salut dels treballadors. D'una banda, aquests patrons poden ser un antecedent d'aquestes variables criteri, i de l'altra, poden tenir un paper modulador en les relacions de les característiques del lloc de treball, pràctiques del treball i altres variables ambientals i/o personals, amb el benestar i el rendiment dels treballadors.

S'assenyala la necessitat de dur a terme recerca empírica sobre aquestes qüestions en contextos laborals i organitzacionals i els potencials beneficis teòrics i pràctics que aquesta recerca probablement reportarà per a l'avanç de la millora de la productivitat i de la qualitat de vida laboral i la salut en el treball.

El benestar i el rendiment a les oficines

El treball a les oficines abasta un percentatge important de treballs. Les oficines són el lloc on més de la meitat de la població passa una bona part de la seua activitat laboral (Development Securities, 2010). Als països de la Unió Europea (EU-27), només les organitzacions no governamentals disposen de vora 1,4 milions d'edificis d'oficines, amb una extensió d'1,2 mil milions de metres quadrats (Ecofys, 2011). Aquests edificis proporcionen el lloc de treball a més de 50 milions de treballadors a Europa (King Sturge, 2010). Per aquesta raó, l'anàlisi de les condicions de treball d'aquest tipus de context laboral és important per a la salut i el benestar dels treballadors (Development Securities, 2010) i per al seu acompliment eficaç (Mertens, 2002).

Durant els últims anys, l'interès per obtenir un rendiment laboral eficaç en les organitzacions s'ha vist complementat per un èmfasi creixent en la promoció de la salut, el benestar i el desenvolupament personal dels treballadors (Lundvall i Lorenz, 2012). De fet, la intenció de promoure la qualitat de vida en el context laboral, es veu reflectida en l'estratègia de Lisboa i en l'estratègia Europa 2020, que posen l'èmfasi en el desenvolupament del capital humà i social, així com en el rendiment, i remarquen la importància de mantenir nivells alts de benestar i de productivitat (Hosie i Sevastos, 2009). En la recerca sobre aquesta temàtica, els estudis que han plantejat la tesi d'un empleat feliç i productiu, advoquen perquè els treballadors feliços rendeixen millor que aquells amb experiències i actituds laborals negatives (Fisher, 2003). Aquests treballs assenyalen, per tant, que la millora de la salut i del benestar dels empleats pot tenir un

impacte positiu en el seu acompliment (p. ex., Bakker, 2009; Estreder i Adell, 2006; Xantopoulou, Bakker, Demerouti, i Schaufeli, 2009) i això, al seu torn, comporta beneficis econòmics per a les organitzacions, mentre que el malestar psicològic afecta negativament el clima organitzacional i la productivitat i efectivitat organitzacional (Peiró, González i Moliner, 2004). De totes maneres, com han assenyalat recentment Peiró, Ayala, Tordera, Lorente i Rodríguez (2014) els resultats sobre la relació benestar-productivitat són poc concloents a causa d'una limitada conceptualització dels elements considerats en estudiar la «tesi del treballador feliç i productiu» i al fet que s'ha prestat una atenció escassa a models alternatius com el «treballador feliç i improductiu» i el «treballador infeliç i productiu».

En aquesta mateixa línia, amb la finalitat de trobar la manera d'aconseguir un alt nivell de benestar i de productivitat en l'àmbit laboral, en la literatura s'han estudiat els diferents aspectes que puguen tenir impacte sobre aquestes dues variables, i cada vegada més s'ha posat de manifest que el context laboral pot tenir una repercussió important sobre la salut dels empleats, i el tema s'ha convertit en una qüestió rellevant de salut pública i ocupacional (Singh, Syal, Grady i Korkmaz, 2010). També s'ha posat de manifest la necessitat de definir paràmetres que permeten crear o redissenyar de tal manera les organitzacions que contribuïsquen a la promoció de la salut i de la productivitat (Feige, Wallbaum, Janser, i Windlinger, 2013). La recerca ha aportat evidència que indica que factors com les característiques del lloc de treball físiques (Samet i Spengler, 2003) i les relatives al contingut del treball (Feige et al., 2013) incideixen sobre la salut i benestar dels treballadors. També ho fan les pràctiques de recursos humans (Mertens, 2002) i les que es relacionen amb la gestió i el desenvolupament de les persones (Wood, Braeken i Niven, 2013). Pel que fa a l'ambient físic del treball, hi ha recerca que ha posat de manifest la relació entre

diferents característiques del lloc i el rendiment i benestar dels treballadors. A més, la recerca ha assenyalat que aquests efectes poden ser diferents en funció dels tipus de treball exercits a les oficines. Per exemple, s'ha observat que les temperatures extremes o els canvis d'il·luminació afecten més negativament el rendiment d'empleats que exerceixen tasques complexes que els que duen a terme tasques simples, mentre que aspectes com el soroll incideixen de manera més negativa sobre el rendiment dels treballadors que exerceixen tasques que impliquen interacció social que els que treballen sols (Aragonés i Amérigo, 1998). Aquests resultats plantegen la necessitat de dur a terme una anàlisi sistemàtica dels diferents patrons de treball i el seu paper en la relació entre les condicions fisicoambientals de treball i l'acompliment i benestar dels treballadors. L'avanç en aquesta direcció requereix identificar i determinar les condicions i característiques de diferents patrons de treball a les oficines. Amb aquesta finalitat cal realitzar una anàlisi de les característiques rellevants com la varietat de les tasques, la seua complexitat, el nivell de relació amb altres empleats o clients, etc. (Development Securities, 2010).

El rol dels patrons de treball en el benestar i el rendiment laboral d'empleats d'oficines

Les diferents maneres en què el treball d'un empleat està dissenyat en termes de les seues característiques de treball, han atret durant molt temps l'atenció de nombrosos científics (veure Morgenson i Humphrey, 2006 per a revisió). Així, els patrons de treball s'entenen com a configuracions o perfils de diferents funcions i tasques laborals que es duen a terme a través de comportaments individuals i/o col·lectius. Generalment, un patró de treball bàsic pot ser el lloc, no obstant això, els patrons de treball poden identificar-se a un nivell més genèric, on un mateix o semblant patró d'activitats laborals es pot trobar en diferents llocs de treball.

El domini de l'activitat laboral, que està directament relacionat amb el que es fa en el treball (Morgeson i Humphrey, 2006), ha estat extensament analitzat per la Xarxa d'Informació Ocupacional (O*NET). O*NET és una base de dades sobre les característiques ocupacionals i els atributs dels treballadors (vegeu Peterson et al, 1997) que ha estat desenvolupada per l'oficina de política i recerca del departament de treball dels Estats Units (USDOL's). O*NET suposa el reemplaçament del diccionari de títols ocupacionals (DOT; U.S. Department of Labor, 1991) i inclou el model de contingut que serveix de marc de referència per a l'organització de la informació que descriu el món del treball presentat en O*NET (McCloy et al., 1998). L'ús dels descriptors utilitzats per O*NET relacionats amb les activitats de treball, desenvolupats, permet ajustar la combinació de creus ocupacionals i ajuda a formular un llenguatge comú entre les ocupacions i països. O*NET distingeix quatre tipus d'activitats laborals que es donen en múltiples treballs: entrada d'informació (p. ex., observació, recepció i altres tipus d'obtenció d'informació des de totes les fonts rellevants), processament mental (p. ex., anàlisi de dades o d'informació, presa de decisions i resolució de problemes), eixida de la informació (p. ex., documentació/enregistrament d'informació, utilitzant ordinadors per a introduir les dades o processament de la informació), i interacció amb altres (p. ex., comunicació amb supervisors, companys o subordinats) (Hansen et al., 2014). Les tres primeres activitats anteriors poden caracteritzar la complexitat de la tasca i per tant del treball, mentre que l'última caracteritza el grau i el tipus de la interacció amb altres persones (clients enfront dels companys de treball).

En primer lloc, activitats com l'entrada d'informació, el processament mental i l'emissió d'informació, se solen relacionar amb «tasques complexes, que es pot entendre com a: (a) una experiència psicològica, (b) una interacció entre la tasca i les característiques de la persona, i (c) un objectiu de les característiques de la tasca»

(Campbell, 1988, p. 40). En segon lloc, la interacció és un altre element clau, en aquest cas social, del lloc de treball. El treball amb els clients pot ser caracteritzat per altes exigències emocionals, ja que requereix la gestió d'emocions pròpies i les dels clients resultants de la interacció o d'altres factors (p. ex., treball emocional). Aquestes emocions i conductes tenen un impacte sobre la salut dels treballadors (p. ex., Brotheridge i Grandey, 2002). D'altra banda, treballar amb altres persones pot suposar una important font de suport social que pot al seu torn tenir efectes positius sobre la salut (Uchino, Cacioppo i Kiecolt-Glaser, 1996).

En els estudis que consideren les relacions entre les diferents característiques del context, el treball, les pràctiques organitzacionals i el lideratge amb el benestar i el rendiment, pràcticament no s'ha considerat el possible rol modulador dels patrons de treball que caracteritzen els llocs de treball a les oficines. La identificació d'aquests patrons de treball pot resultar útil per a comprendre millor les relacions adés esmentades i per tant contribuir a un disseny més adequat del context i/o contingut del treball i així assegurar unes condicions més adequades per a un bon rendiment i la millora del benestar i la promoció de la salut dels treballadors.

L'aportació teòrica principal del present treball és l'elaboració teoricoconceptual del paper que els patrons de treball poden tenir en la millora del benestar i el rendiment laboral, i en quina mesura pot exercir un paper modulador en les relacions entre les condicions i característiques laborals que incideixen sobre el benestar i la productivitat dels treballadors i aquests efectes, en cas d'empleats que exerceixen diferents tipus d'activitats en el seu treball. La combinació de característiques del treball com la complexitat de les tasques i activitats que es realitzen i el grau d'interacció amb altres actors del treball (companys) permet establir diferents patrons de treball que resulten rellevants per a analitzar els resultats del treball tant pel que fa a l'acompliment del

treballador com al seu benestar i salut. D'altra banda, i com ja s'ha assenyalat, la literatura ha identificat un bon nombre d'antecedents significatius en el treball d'aquests dos tipus de resultats (acompliment i benestar).

Podem esmentar, sense pretensions de ser exhaustius, les condicions fisicoambientals del treball, les característiques de la tasca, les característiques del lloc de treball i de la relació establerta amb l'ocupador, les pràctiques de recursos humans que s'utilitzen en l'empresa, les relacions i el seu clima social. La caracterització dels patrons de treball permetrà analitzar si hi ha diferències en les relacions que acabem d'esmentar en funció d'aquests patrons de treball. A pesar que a penes s'ha estudiat aquesta qüestió, cal esperar que aquestes diferències existiran en molts casos i seran rellevants per a comprendre millor aquestes relacions i la millora dels antecedents que han de contribuir a la millora de rendiment i benestar.

A més de l'avanç teòric que pot suposar la recerca empírica de les qüestions que estem plantejant, entenem que els resultats de la recerca poden tenir rellevància en el nivell pràctic. Tal com hem assenyalat, el coneixement rigorós i contrastat de la relació entre els antecedents ambientals del treball i personals dels treballadors sobre el benestar i rendiment es pot beneficiar de la diferenciació dels llocs de treball en funció del patró de treball que presenten. Lògicament, el disseny de les característiques del context laboral, per exemple, de les oficines, pot beneficiar-se de la consideració de les necessitats en funció del tipus de tasques que s'exerceixen. Una anàlisi empírica de totes aquestes qüestions pot produir contribucions importants a una pràctica professional i a un redisseny de les condicions i característiques dels llocs que poden ser rellevants per a la millora de la productivitat i el benestar i salut dels treballadors.

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ESTUDIO 2

MEDIATING ROLE OF JOB SATISFACTION, AFFECTIVE WELL-BEING, AND HEALTH IN THE RELATIONSHIP BETWEEN INDOOR ENVIRONMENT AND ABSENTEEISM: WORK PATTERNS MATTER!

Soriano, A., Kozusznik, M., Peiró, J.M., & Mateo, C. (2018) Mediating role of job satisfaction, affective well-being, and health in the relationship between indoor environment and absenteeism: work patterns matter! *WORK: A Journal of Prevention, Assessment & Rehabilitation*, 61, 313-325.

Mediating role of job satisfaction, affective well-being, and health in the relationship between indoor environment and absenteeism: work patterns matter!

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ABSTRACT

Background: Office workers spend long hours in their workplace, and these environments impact their well-being and performance. This relationship can involve different mediation chains. The degree of complexity of this relationship can vary depending on different types of office work (work patterns) employees carry out.

Objective: To analyze the relationship between indoor environment and absenteeism, and the mediating role of job satisfaction, affective well-being, and health, in different work patterns.

Method: 1306 office workers from different European countries were classified into work patterns depending on: task complexity and interactivity.

Results: Job satisfaction, affective well-being, and health mediate the relationship between indoor environment and absenteeism. However, differences in the mediation paths were found for different work patterns. The paths through which indoor environment can affect absenteeism increased as the work patterns increased in complexity and interactivity.

Conclusion: Work patterns play a role in the relationship between indoor environment, health, well-being, and absenteeism. This study highlights the mechanisms through which an improved indoor environment can protect employees' well-being, and

decrease absenteeism in different work patterns. It also points out workers especially at risk of a detrimental impact of poor indoor environment and it suggests ways to prevent them.

Keywords: Physical conditions, Positive emotions, Performance, Task complexity, and Interactivity

Introduction

In recent years, attention has been paid to defining work settings that can have a positive effect on employees' well-being and productivity [1]. With this in mind, researchers have studied different aspects that may ensure high levels of well-being and work performance, manifested as a lower rate of employee absenteeism [2]. Results show that the work context has an impact on employees' health [3], which is a relevant issue in public and occupational health [4]. Simultaneously, employees who are satisfied with the overall environmental quality of their workspace tend to be more productive [5]. Therefore, occupational health care has to prioritize its efforts towards enhancing the quality of working life as a possible way to prevent and decrease absenteeism [6,7].

More than 50% of workers spend long hours in offices, and these environments have an important impact on their health and well-being [3]. Furthermore, work in offices can be characterized by the extent to which one works alone or with other people, and by the degree of complexity of the tasks, giving rise to different work patterns [8]. Researchers have shown that factors such as task complexity or interaction with other people can be potential boundary conditions for the effects of different work-related variables, influencing work outcomes [9]. However, the role of these work patterns in the relationship between indoor environment and well-being, health, and work performance has not been explicitly studied. Therefore, the purpose of the present

study is to examine the relationship between indoor environment and absenteeism, and the mediating role of job satisfaction, affective well-being, and general health, in different work patterns. Expanding research on the role of work patterns in the relationship between indoor environment, well-being, health, and work performance is important because it would allow to contribute to an improved design of indoor environments adequate for different types of office work. The generated knowledge in this area would help to prevent work-related illness, and, as consequence, improve performance.

The indirect effect of poor indoor environment on sick-leave absenteeism: cognitive and affective paths

Employees' rate of *absenteeism* is one of the main indicators of performance [2]. Different aspects of the indoor environment have been studied to estimate their impact on workers' performance, showing that about 86% of productivity problems reside in the work environment of organizations [10]. First, performance decreases at excessively cool or warm environmental temperatures [11], for example the increase in air temperature has been associated with the reduction of physical and cognitive performance in humans [12]. Second, performance decrease when there is bad indoor air quality [13]. Third, employee productivity can be reduced by as much as 40% in noisy offices [14], being one of the most disturbing noise sources at shared workplaces background speech [15]. Fourth, exposure to organic vapors that can be produced by office equipment [16] and dust in office environments are main factors related to health symptoms [17] and occupational diseases [18]. In this sense, improper occupational conditions in the workplace may affect both workers well-being and productivity [19]. In fact, the indoor environment is an important risk factor for the onset of long-term sickness absence among employees [20,21].

Absenteeism is an unavoidable phenomenon in the world of work; however, however, when its levels exceed a certain threshold, it can hinder public health [22] and organizational performance [23]. In addition, the causes of absenteeism may indicate certain problems workers have in terms of their health and well-being being threatened by their work [23]. In this regard, Allen's [24] model suggests that the prevalence of adverse working conditions makes employees' absence more likely. In fact, some evidence shows that the indoor environment has a strong association with sickness absence and is even an important risk factor for the onset of long-term sickness absence among employees [20]. Furthermore, studies indicate that improving the working conditions should be part of any scheme designed to decrease sickness absence [25] and thus, investment in interventions to prevent absenteeism should increase [21].

Additionally, Veitch, Charles, Kelly, Farley, & Newsham [26] suggest that satisfaction with the physical environment may indirectly contribute to broader organizational outcomes. Therefore, we expect that there will be mediators in the relationship between a poor indoor environment and absenteeism.

The first avenue through which indoor environment can affect the absenteeism rate involves *job satisfaction*. Job satisfaction can be defined as a "positive evaluative judgment one makes about one's job or job situation" [27], emphasizing its cognitive nature. On the one hand, previous research has reported relationships between indoor environment and job satisfaction [28]. On the other hand, according to the happy-productive worker thesis, an increase in job satisfaction can lead to better job performance [29] and reduced absenteeism [30]. By contrast, lack of job satisfaction can be an important reason for some employees to look for ways to avoid working, such as faking illness [31].

A second possible path through which poor indoor environment can affect absenteeism involves *affective well-being*, which can be defined as the frequent experience of positive affect [1]. On the one hand, being forced to work in unpleasant conditions has negative consequences for affective well-being [32] (e.g., too warm or too cool temperatures may produce negative emotions, which can increase absenteeism [33]). On the other hand, work can provide opportunities for personal growth, purpose in life, and positive relationships with others. Therefore, people with higher affective well-being at work are often better workers and deliver important benefits to their organizations [32]. Taking into account results obtained in previous studies on how the indoor environment can affect sick-leave absenteeism through a ‘cognitive’ path and an ‘affective’ path, we formulate the following hypotheses:

Hypothesis 1a. Office workers’ job satisfaction will mediate the relationship between the perception of poor indoor environment and sick-leave absenteeism (cognitive path)

Hypothesis 1b. Office workers’ affective well-being will mediate the relationship between the perception of poor indoor environment and sick-leave absenteeism (affective path)

The indirect effect of poor indoor environment on sick-leave absenteeism: Cognitive-health and affective-health paths

Furthermore, different studies have established a relationship between cognitive and affective facets of well-being and health. On the one hand, job satisfaction has been shown to be related to improved employee health [34–36]. By contrast, people who are dissatisfied with their work have been shown to have worse health than satisfied people [37].

On the other hand, research has shown a relationship between higher affective well-being (i.e., absence of negative emotions and a high level of positive emotions) and better health [38]. The broaden-and-build theory of positive emotions [38] offers a theoretical explanation for the fact that people who are happier achieve better health [34] by linking the cumulative experience of momentary positive emotions to the development of lasting resources such as health. In turn, the main causes of absenteeism are health problems because employees with worse health often miss more work hours, ask for more sick-leave, and are less productive than healthy workers [23]. With this in mind, we formulate the following hypotheses:

Hypothesis 2a. There will be an indirect effect of the perception of a poor indoor environment on sick-leave absenteeism through office workers' job satisfaction and general health, in that order (cognitive-health path).

Hypothesis 2b. There will be an indirect effect of the perception of a poor indoor environment on sick-leave absenteeism through office workers' affective well-being and general health, in that order (affective-health path).

The indirect effect of poor indoor environment on sick-leave absenteeism: Cognitive-affective path and cognitive-affective-health paths

Simultaneously, human cognition and emotion systems interact in important ways [39], and cognition has been found to influence people's affectivity [40,41]. In this regard, the cognitive appraisal process, understood as the way one evaluates and interprets one's situation, gives rise to a particular emotion with more or less intensity depending on how the situation is evaluated; thus, cognition processes are crucial to the emotional response [40]. Thus, dissatisfaction can produce negative emotions [42]. In fact, researchers have found a significant positive relationship between job satisfaction and affective well-being [43], which in turn improves health [35,38]. At the same time,

job satisfaction has a positive cross-lagged effect on work engagement, which is characterized by a positive emotional state that has positive cross-lagged effects on mental-health [35,38]. With this in mind, we formulate the following hypotheses:

Hypothesis 3. There will be an indirect effect of the perception of poor indoor environment on sick-leave absenteeism through office workers' job satisfaction and affective well-being, in that order (cognitive-affective path)

Hypothesis 4. There will be an indirect effect of the perception of poor indoor environment on sick-leave absenteeism through office workers' job satisfaction, affective well-being and general health, in that order (cognitive-affective-health path)

The role of work patterns in the mediated relationship between perception of poor indoor environment on sick-leave absenteeism

Jobs consist of a set of work activities [44] designed to fulfill a number of functions that can form several configurations or patterns. A similar pattern of work activities is often found in a number of jobs. Work in offices can be characterized by four types of work activities occurring in multiple jobs: information input (e.g., observing), mental processes (e.g., analyzing data), work output (e.g., documenting information), and interaction with others (e.g., communicating with supervisors or subordinates) [45]. This classification suggests that there are two dimensions: task complexity (which refers to a psychological experience, an interaction between task and personal characteristics, and depends on objective task characteristics) [46] and interaction with other people. These two dimensions can yield four types of work patterns: 1) Non-interactive, high complexity, 2) Non-interactive, low complexity, 3) Interactive, high complexity, and 4) Interactive, low complexity [8].

The different ways an employee's work is designed has captured the attention of many scientists, and it has been shown that work patterns can be relevant in different outcomes at work [9]. Activation theory [47] suggests that an individual's activation level is directly related to the intensity, variation, uncertainty, and meaningfulness of the stimulus. Thus, performance has been found to vary from individual to individual depending on the complexity of the tasks performed. Along these lines, this theory proposes that there is an optimal activation level, and when this level is exceeded (e.g. task complexity and interaction with others), workers' performance decreases. Although these results are not directly related to the ways work conditions can lead to absenteeism, in the present study we expect the relationships among indoor environment, job satisfaction, health, affective well-being, and absenteeism to vary depending on the types of activities carried out in the workplace. However, the role of these work patterns in the relationship between working conditions and well-being, health, and work performance has not been explicitly studied. Studies have shown that when jobs involve interaction with others, environmental characteristics such as noise can be appraised as greater stressors, due to the difficulty of talking by phone or maintaining oral communication [48]. Moreover, workers who perform simple tasks are less affected by temperature differences than workers who simultaneously perform two tasks [49]. Based on these ideas, researchers have argued that there is increased sickness absence among employees who perform cognitively demanding tasks under ambient noise conditions due to the significant interaction between noise in the workplace and task complexity [50]. As in the case of interaction with other people, task complexity has not been studied to find out whether the rate of absenteeism of people who perform complex tasks is affected in more ways by a poor indoor environment than the absenteeism rate of workers who perform simple tasks. In order to explore the roles of

job tasks involving interaction with others and task complexity in the associations mentioned above, we formulate the following exploratory hypothesis:

Hypothesis 5. There will be greater indirect effects of a poor indoor environment on sick-leave absenteeism through office workers' job satisfaction, affective well-being, and general health, as work patterns increase in complexity and interactivity.

The European HOPE study [51] highlighted that it is necessary to detect and control occupational environmental risks in order to improve workers' work capacity and well-being. More recently, Bluysen and colleagues [52] carried out the OFFICAIR project, in which they showed the need for an integrated approach to understanding the relationship between the indoor environment and workers' well-being, in order to provide a healthy workspace. The identification of work patterns is especially useful for designing work environments and ensuring optimal conditions that contribute to performance and create opportunities to promote workers' health and well-being.

Therefore, the main objective of this study is to analyze the paths through which the indoor environment influences sick-leave absenteeism, taking into account the mediating role of job satisfaction, affective well-being, and general health, in different work patterns. Figure 1 graphically represents the model to be tested in the study.

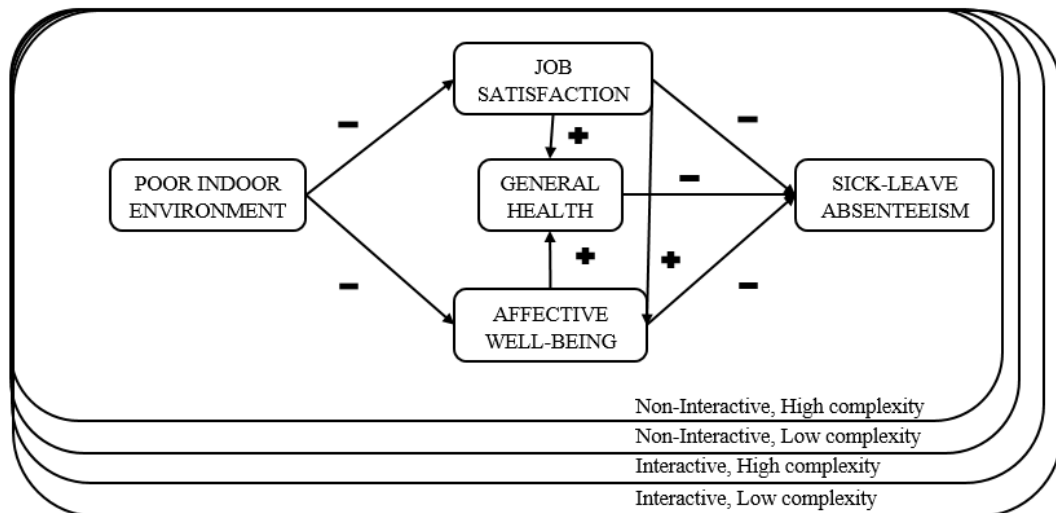


Figure 1 *The proposed research model in this study*

Method

Sample

In the present study, we used data from the fifth European Survey on Working Conditions (EWCS) by the European Foundation on Working Conditions (Eurofound). The basic multi-stage, stratified, random sample of the fifth European Working Conditions Survey was composed of 43,816 workers from 34 European countries.^[1] However, given that the European Working Conditions Study does not focus specifically on office workers, we have filtered the data from the participants just to select the sub-sample of office workers, following a multiple step procedure based on the individuals' responses to a number of questions included in the survey. First, we selected the workers who, in response to the question: "Where is your main place of work?", responded "My employers'/my own business' premises (office, factory, shop, school, etc.)". Second, out of this group, we selected workers pertaining to the category 'office clerks'. Third, because our study involves groups of office workers who work alone as well as those who work in interaction with other people, we further narrowed

^[1] For more details see technical report of Gallup Europe [53]

the sample to include those office workers who, in response to a question about whether they work with other colleagues and/or with clients, indicated that they work both with other colleagues and with clients. In addition, we also included those who indicated that they do not work with colleagues or with clients. Finally, in our study we were interested in employees who carry out simple or complex tasks. Then, in the last step, we excluded anyone who did not provide an affirmative or negative response to the question “Generally, does your main paid job involve complex tasks?” This process yielded a final sample of 1306 office employees.

Procedure

The fifth European Working Conditions Survey was developed by Eurofound, and data collection was carried out by a network of national institutes, coordinated by Gallup Europe. The methods met the required quality standards for the test development and implementation process, which includes a pre-test, a review of trend elements, a 5-phase translation process and validation of new questionnaire elements, an additional layer of questionnaire translation validation by experts, and a pilot stage [53]. Data collection took place in 2010.^[2]

Variables

Perceived poor indoor environment was measured with a 6-item scale (e.g., ‘Are you exposed at work to high temperatures that make you perspire even when not working?’) to assess temperature, air quality, noise, and the existence of chemical substances in the work environment. These items were taken from the fifth European Working Conditions Survey. The questionnaire was developed by Eurofound, considering a wide range of workers (including office workers). Despite its generic character, the majority of the items are relevant to office workers. Three items on the

^[2] For more details about the procedure, see technical report of Gallup Europe [53]

scale were omitted based on the opinion of three independent competent experts because they considered them unsuitable for office workers (i.e., Vibrations from hand tools, machinery, etc.; Tobacco smoke from other people; and handling or being in direct contact with materials that can be infectious, such as waste, bodily fluids, laboratory materials, etc.). The six items included in the present study were kept for theoretical and psychometric reasons. On the one hand, the items referred to characteristics identified in the literature as important environmental stressors present in offices, such as: exposure to excessively high or low temperatures in offices [11], exposure to organic vapors that can be produced by office equipment [16], exposure to dust, which is one of the main office factors related to health symptoms [17], or uncomfortable noise in offices where people naturally would raise their voice levels when the ambient noise exceeds 45 dB [54]. These items are relevant for the majority of offices. However, if an item was not considered relevant by the respondents, they could use the response option “don’t know” or “no answer”, and these responses were not taken into account in the analyses in our study. On the other hand, the Cronbach’s α for the six-item perceived poor indoor environment scale was satisfactory, and the Confirmatory Factor Analysis showed a good fit (RMSEA=.087; CFI=.96; TLI=.94). Regarding the convergent validity of the attributes reflected in the items, results indicated that the items converged well enough because the standardized factor loadings for the one-factor structure proposed were statistically significant ($p < .01$) and above .80 and, thus, above the standard requirement of .60 [55]. The distribution of perceived poor indoor environment was truncated (high levels of kurtosis and skewness). This problem was tackled by applying the $\ln(\text{punctuation} + 1)$ transformation. Once it had been computed, the kurtosis and skewness (1.9 and 1.5, respectively) values were acceptable [56].

General health was measured with a single item (“How is your health in general?”). This item was taken from the fifth European Working Conditions Survey. The significant correlation of this measure with the total score on the 20-item Short-form General Health Survey (Cronbach’s alpha ranged from .87 to .95) suggests that a simple measure like this one is an acceptable way of assessing health [57].

Job satisfaction was measured with an 8-item scale (e.g., “In general, do your working hours fit your family or social commitments outside work?”) (Cronbach’s $\alpha = .70$). These items were taken from the fifth European Working Conditions Survey.

Affective well-being was measured with a 5-item scale (e.g., “how have you been feeling in the past two weeks? – I have felt cheerful and in good spirits”) (Cronbach’s $\alpha = .86$). These items were taken from the fifth European Working Conditions Survey.

Self-reported sick-leave absenteeism was measured with a single item (“over the past 12 months, how many days in all were you absent from work due to health problems?”). This item was taken from the fifth European Working Conditions Survey. Because the distribution of the absenteeism measures was also truncated, we applied the same transformation as in the case of perceived poor indoor environment. Once this transformation had been implemented, the levels of kurtosis and skewness (0.1 and 0.9, respectively) were acceptable [56]. A strong congruence was found between company record-based absenteeism reports and worker self-reports [58]. Moreover, absenteeism results were similar when comparing single-item measures and large-scale studies [59].

Work patterns were identified on the basis of the configuration of the participants’ responses to the questions on the fifth European Working Conditions Survey about: a) interactions with others at work; b) the complexity of the task they performed; and c) education, 5 - Post-secondary, including pre-vocational or vocational

education, but not tertiary, 6 - Tertiary education – first level, and 7 - Tertiary education – advanced level).

Analysis

Given that behavioral research may suffer from common method bias [60], prior to carrying out the analyses to test the hypotheses in the current study, we conducted preliminary analyses to ensure that common method bias was not an issue in our data. To this end, we carried out a CFA, which has been indicated as a relevant way to rule out the problem of common method bias [61–63] using MPLUS [64]. Statistical analyses were carried out using SPSS v.22. Hierarchical regression analyses of direct and indirect effects and bootstrapped bias-corrected 95% confidence intervals of the indirect effect were computed using the PROCESS macro in SPSS (Model 6). Model 6 in the PROCESS macro specifies a serial multiple mediator model, and the sequence of variables in the list (job satisfaction, affective well-being, and general health) specifies the causal ordering of the mediators. The PROCESS command generates the model for the total effect, as well as bootstrap confidence intervals for the indirect effects based on 5,000 resamples [65]. PROCESS already employs measures to reduce Type I errors because it constructs bias-corrected and percentile-based bootstrap confidence intervals for conditional and unconditional indirect effects in mediation models [65]. Confidence intervals that do not contain zero indicate a significant indirect effect (mediation). In addition, country, gender, and educational level were controlled in these mediations. Differences between countries have been found in all the variables considered in this study. Regarding gender, differences between males and females on job satisfaction and poor indoor environment were significant (women showed higher satisfaction and lower perception of poor indoor environment). Regarding education, health and poor indoor

environment varied in the different educational-level groups (higher educational levels meant better health and perception of poorer indoor environment).

Results

Preliminary results show that common method bias is not an issue in our data because a single-factor CFA taking into account all the study variables (RMSEA = .138; CFI = .513; TLI = .452; SRMR = .130) obtained a significantly worse fit ($\Delta\chi^2(3) = 3122.771(3)$, $p < .001$, $\Delta CFI = .402$, $\Delta TLI = .451$, $\Delta SRMR = -.087$) [66–68] than a multi-factor CFA with the same number of factors as scales in the present study (RMSEA = .058; CFI = .915; TLI = .903; SRMR = .043) [60–63]. The descriptive characteristics of the sample for each work pattern are shown in Table 1.

Table 1. *Work patterns: sample characteristics*

	NI/HC (n=263) n (%)	NI/LC (n=246) n (%)	I/HC (n=542) n (%)	I/LC (n=255) n (%)	Total
<i>Age^a</i>	43.36 (11.47)	42.61 (11.70)	39.78 (10.62)	41.08 (11.07)	41.29 (11.17)
<i>Gender^b</i>					
Male	62 (23.6%)	93 (37.8%)	176 (32.5%)	88 (34.5%)	419 (32.1%)
Female	201 (76.4%)	153 (62.2%)	366 (67.5%)	167 (65.5%)	887 (67.9%)
<i>Highest educational level reached^c</i>					
Pre-primary	0	2 (0.8%)	2 (0.4%)	1 (0.4%)	5 (0.4%)
Primary	3 (1.1%)	8 (3.3%)	4 (0.7%)	6 (2.4%)	21 (1.6%)
Low secondary	54 (20.5%)	49 (19.9%)	96 (17.7%)	53 (20.8%)	252 (19.3%)
Up secondary	120 (45.6%)	126 (51.2%)	244 (45.0%)	104 (40.8%)	594 (45.5%)
Post-secondary	23 (8.7%)	11 (4.5%)	34 (6.3%)	26 (10.2%)	94 (7.2%)
Tertiary–1 st lvl	63 (24.0%)	50 (20.3%)	160 (29.5%)	62 (24.3%)	335 (25.7%)
Tertiary-adv	0	0	1 (0.2%)	2 (0.8%)	3 (0.2%)
Refusal	0	0	1 (0.2%)	1 (0.4%)	2 (0.2%)

Note. ^a Means and standard deviations. ^b The number in parentheses represents the percentage of the total in each work pattern. NI/HC (Non-interactive, high complexity), NI/LC (Non-interactive, low complexity), I/HC (Interactive, high complexity) and I/LC (Interactive, low complexity).

Means, standard deviations, analyses of variance (ANOVA), and correlations (Pearson) are presented in Table 2. Workers from different work patterns present similar average levels of general health, job satisfaction, and affective well-being. Regarding

the indoor environment, interactive workers perceive worse physical conditions than non-interactive workers who perform complex tasks ($p < .001$). In addition, interactive workers who perform complex tasks perceive worse physical conditions than non-interactive workers who perform simple tasks ($p < .05$). Furthermore, taking into account the rate of absenteeism, there are no significant differences between the groups, except for the work patterns “Non-interactive, low complexity” and “Interactive, high complexity”, as the latter presents higher absenteeism levels than the former (0.83 and 1.16, respectively, $p < .05$).

Table 2. Means, standard deviations, variance analyses (ANOVA) and correlations (Pearson)

	\bar{X} NI/HC (SD)	\bar{X} NI/LC (SD)	\bar{X} I/HC (SD)	\bar{X} I/LC (SD)	F	1	2	3	4
1. Perceived poor indoor environment	0.15 (0.27)	0.19 (0.34)	0.28 (0.37)	0.27 (0.36)	10.11**				
2. General health	4.03 (0.78)	4.09 (0.75)	4.03 (0.74)	4.04 (0.71)	0.53	.13**			
3. Job satisfaction	3.78 (0.63)	3.72 (0.72)	3.79 (0.57)	3.75 (0.58)	0.66	.22**	.34**		
4. Affective well-being	4.20 (1.10)	4.29 (0.98)	4.30 (0.96)	4.43 (0.95)	2.35	.07**	.34**	.40**	
5. Sick-leave absenteeism	0.97 (1.25)	0.83 (1.17)	1.16 (1.26)	1.09 (1.32)	4.33*	.08**	.25**	.12**	.14**

Note: Significant at: * $p < .05$ and ** $p < .01$; the correlations are aggregated data of the different work pattern samples; separate correlations for the four samples might be facilitated after contacting the authors. NI/HC (Non-interactive, high complexity), NI/LC (Non-interactive, low complexity), I/HC (Interactive, high complexity) and I/LC (Interactive, low complexity).

Results are presented in Table 2 and Figure 2. Taking into account the whole sample, in contrast to hypotheses 1.A and 1.B, there are no simple mediations between indoor environment and absenteeism. Nevertheless, a double mediation between perception of poor indoor environment and office workers' sick-leave absenteeism was found through office workers' job satisfaction and health ($B = .044$; IC 95% = [.03, .07]) and through office workers' job satisfaction and affective well-being ($B = .02$; IC 95% = [.01, .05]), (hypotheses 2.A and 3). No support was found for hypothesis 2.B, as the

double mediation between the independent variable and the dependent variable through affective well-being and health was non-significant. Finally, a triple mediation effect was found between perception of poor indoor environment and workers' sick-leave absenteeism through employees' job satisfaction, affective well-being, and health (hypothesis 4) ($B=.01$; IC 95% = [.01, .03]).

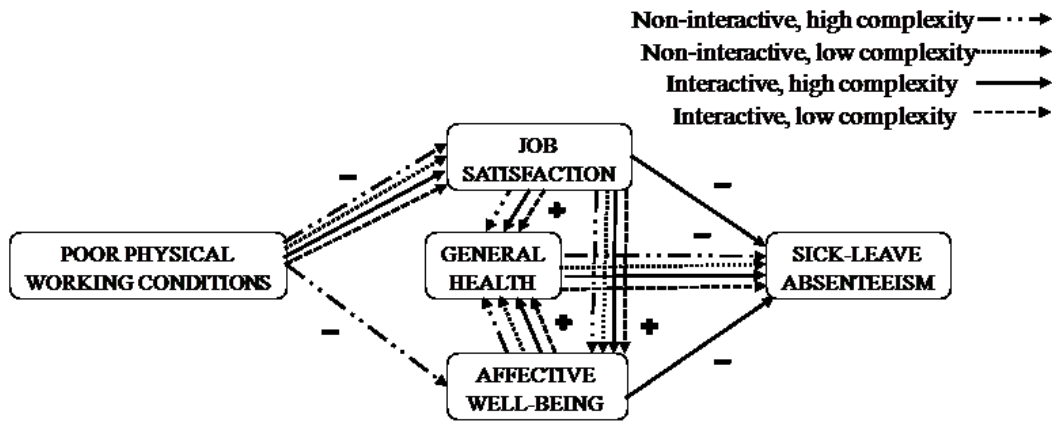


Figure 2 *Parallel multiple mediation analyses: different work patterns*

Table 3. *Parallel multiple mediation analyses: general model*

	General model		
	α	SE	95% IC
Country	-.01*	.01	-.02 to -.01
Gender	.13	.08	-.02 to .29
Educational level	-.03	.03	-.09 to .03
Total effect	.36*	.11	.15 to .58
Direct effect	.23*	.11	.03 to .44
Indirect total effect	.13*	.04	.06 to .21
Cognitive path (H1.A.)	.01	.03	-.05 to .06
Affective path (H1.B)	.01	.01	-.01 to .02
Cognitive-Health path (H2.A)	.04*	.01	.03 to .07
Affective-Health path (H2.B)	.01	.01	-.01 to .01
Cognitive-Affective path (H3)	.02*	.01	.01 to .05
Cognitive-Affective -Health path (H4)	.01*	.01	.01 to .03

Notes: Results are based on 5000 bias-corrected bootstrap samples. * $p < .05$.

α (Unstandardized parameter estimate)

Table 4. *Parallel multiple mediation analyses: work patterns*

	Work patterns											
	Non-interactive, High complexity			Non-interactive, Low complexity			Interactive, High complexity			Interactive, Low complexity		
	α	SE	95% IC	a	SE	95% IC	α	SE	95% IC	α	SE	95% IC
Country	-.01	.01	-.03 to .01	-.01	.01	-.03 to .01	-.01	.01	-.02 to .01	.01	.01	-.01 to .01
Gender	-.07	.19	-.45 to .30	-.07	.17	-.41 to .27	.16	.12	-.08 to .41	.34	.18	-.02 to .72
Educational level	-.05	.07	-.20 to .09	-.01	.07	-.16 to .13	-.06	.05	-.16 to .02	.01	.07	-.14 to .14
Total effect	.41	.30	-.17 to .99	.24	.26	-.27 to .75	.31*	.16	.01 to .62	.39	.24	-.09 to .87
Direct effect	.09	.30	-.50 to .69	.16	.26	-.36 to .67	.20	.15	-.10 to .50	.26	.24	-.21 to .73
Indirect total effect	.32*	.17	.02 to .72	.08	.11	-.11 to .34	.11*	.05	.02 to .22	.13	.10	-.06 to .32
Cognitive path (H1.A)	-.10	.13	-.41 to .12	.02	.09	-.12 to .25	.05*	.03	.01 to .11	-.02	.06	-.17 to .08
Affective path (H1.B)	-.01	.04	-.10 to .07	-.01	.03	-.12 to .02	-.01	.02	-.04 to .05	-.01	.02	-.04 to .03
Cognitive-Health path (H2.A)	.19*	.07	.08 to .38	.07*	.04	.02 to .19	.02*	.01	.01 to .05	-.01	.02	-.04 to .04
Affective-Health path (H2.B)	.04*	.03	.01 to .13	-.01	.02	-.07 to .01	-.01	.01	-.01 to .02	-.01	.03	-.06 to .05
Cognitive-Affective path (H3)	-.01	.06	-.11 to .11	.02	.03	-.04 to .10	.03*	.01	.01 to .06	.01	.02	-.04 to .06
Cognitive-Affective-Health path (H4)	.06*	.03	.01 to .15	.02*	.01	.01 to .07	.01*	.01	.01 to .02	.04*	.02	.01 to .09

Notes: Results are based on 5000 bias-corrected bootstrap samples. * $p < .05$. α (Unstandardized parameter estimate)

The subgroup analysis using work patterns as moderator showed differences in the number of paths in the indirect effects between work patterns. The *interactive, low complexity (I/LC) pattern* presents a triple mediation between perception of poor indoor environment and employees' sick-leave absenteeism through office workers' job satisfaction, affective well-being and health ($B=.04$; IC 95% = [.01, .09]). The *non-interactive, low complexity (NI/LC) pattern* shows a double mediation between indoor environment and absenteeism through office workers' job satisfaction and health ($B=.07$; IC 95% = [.02, .19]) and a triple mediation through employees' job satisfaction, affective well-being, and health ($B=.02$; IC 95% = [.01, .07]). The *non-interactive, high complexity (NI/HC) pattern* presents a significant double mediation through office workers' job satisfaction and health ($B=.19$ IC 95% = [.08, .38]), and another one through employees' affective well-being and health ($B=.04$; IC 95% = [.01, .13]). The results also show a triple mediation path through employees' job satisfaction, affective well-being, and health ($B=.06$; IC 95% = [.01, .15]). Finally, for the *interactive, high complexity (I/HC) pattern*, a mediation was found through office workers' job satisfaction ($B=.05$; IC 95% = [.01, .11]), and there were two double mediation paths: one through office workers' job satisfaction and health ($B=.02$; IC 95% = [.01, .05]), and another one through employees' job satisfaction and affective well-being ($B=.03$; IC 95% = [.01, .06]). Finally, a triple mediation path was identified through office workers' job satisfaction, affective well-being, and health ($B=.01$; IC 95% = [.01, .02]).

The results obtained generally provide support for the hypotheses. They show that office workers who interact with other people at work and perform complex tasks, are affected by the indoor environment through a larger number of indirect paths (hypothesis 5). In fact, although hypothesis 4 ("cognitive- affective- health" path) is supported for all of the work patterns, those involving complex tasks are characterized

by a greater influence of affective well-being. On the one hand, in the *non-interactive, high complexity pattern*, the indoor environment directly affects affective well-being, regardless of job satisfaction. On the other hand, in the interactive, high complexity pattern, the indoor environment affects sick-leave absenteeism through job satisfaction and affective well-being, regardless of health. In addition, in this latter work pattern, job satisfaction mediates the relationship between indoor environment and sick-leave absenteeism, regardless of health and affective well-being.

Discussion

The aim of this study is to analyze whether (and how) work patterns moderate the mediating role of office workers' job satisfaction, affective well-being, and general health in the relationship between poor indoor environment and sick-leave absenteeism.

The results for the whole sample show that different indirect paths were significant. First, the "job satisfaction-affective well-being" path was significant, and this result is in line with the one obtained by Grieshaber, Parker and Deering [42], who found that emotional problems are the result of high dissatisfaction. Second, the "job satisfaction-health" path was also significant, which is consistent with Diener and Chan [35]. Finally, the results obtained in the present study and those reported by other researchers [35,38,69] support the idea that the "job satisfaction-affective wellbeing-health" path mediates the relationship between indoor environment and sick-leave absenteeism. These results can be explained by considering the conclusions of the authors of the European HOPE project [70] and the OFFICAIR study [52]. In the European HOPE project, Bluysen, Aries and van Dommelen [70] highlight that building and personal factors can influence one's perceived health, whereas the OFFICAIR study [52] concludes that affectivity plays a part in the relationship between indoor environment and workers' health and comfort.

Regarding the effect of the control variables (country, gender, and educational level), results showed a significant effect of the ‘country’ variable. These results could be explained by taking into account the cross-cultural approach to stress literature, which has shown that there might be country differences in the perception of stressors [71], the consequences of stress, and the strength of the relationships between the reported stressors and their outcomes [72,73]. Future studies should consider the effect of country on the perception and consequences of environmental stressors.

The results for the different work-pattern groups separately show that there is a relationship between the perception of the indoor environment and sick-leave absenteeism through the three proposed mediators in each pattern. However, most of the indirect paths were significant in the work patterns consisting of complex tasks. We can argue that workers who perform complex tasks are more bothered by aspects of the indoor environment, such as temperature [49] or noise [50], as they have a more negative influence on attitudes, affect, and health.

Furthermore, our results indicate that there are more indirect paths in work patterns consisting of complex tasks than in those consisting of interactions with others. However, interactions with other people at work, as previous research indicates, also play an important role in the studied relationships [48], as the work pattern with more significant paths between the perception of the indoor environment and sick-leave absenteeism through the mediators is the one referring to working with people and performing complex tasks. According to activation theory [47], when there is too much activation (e.g., poor indoor environment, complex tasks, and interaction with other people at work), the performance level decreases, probably due to the effect of these conditions on employees’ health and well-being.

Despite its contributions, the present study has some limitations. First, although the indoor environment scale developed by EUROFOUND and Gallup Europe measures different relevant aspects of the indoor environment, such as noise, indoor temperature, or dust in different types of jobs, a limitation of this scale is that it was not possible to include some aspects of the indoor office environment in the scale used in the present study (i.e., stuffy air, unpleasant odor, lighting, and reflections). Second, due to the cross-sectional nature of the study design, causal inferences cannot be made. Third, our results are based on responses obtained from some single-item scales which may provide limited information. Nevertheless, a number of studies suggest that this simple measure is an acceptable method [57–59], although it would be informative to expand the current methodology using multiple-item scales. Fourth, although in the present study we use self-report measures for several variables, research shows a strong congruence between company records and workers' self-reports [58]. Future studies should complement the research using self-reports with other more objective measures. Finally, we are aware that survey data might be subject to common method bias [60]. However, we believe that this issue may not have affected the results in this study. In fact, Eurofound and Gallup Europe, who developed the questionnaire, were aware of the issue of common method bias and took measures to reduce it. They followed Podsakoff and colleagues' [60] suggestions by: a) instructing respondents that the aim was to explore how they felt about their work and how their work affects their life, b) ensuring anonymity, and c) using different scale formats for different scales on the questionnaire [53]. Additionally, some behavioral research may suffer from common method bias [60]. However, as suggested by literature [61–63], we were able to test whether common method bias might affect our results using CFA. It indicated that a single factor did not emerge from the factor analysis, nor did one general factor account for the

majority of the covariance among the measures, providing support for the assumption that a substantial amount of common method variance is not an issue in our study [60].

The results of the present study suggest that future research should investigate these relationships in different occupational samples and distinguish between interactions with colleagues and interactions with clients in these work patterns. In addition, future studies should explore other relevant issues related to the broaden-and-build theory [38] and study the moderating effect of positive emotions on the proposed relationships.

Our findings have important implications. First, regarding theoretical issues, in this study we conceptualize office workers' well-being by taking into consideration both cognitive and affective well-being. We also take into account different constructs that play a mediating role in the relationship between indoor environment and sick-leave absenteeism, studying aspects related to work life (job satisfaction) and aspects related to life in general (general health and affective well-being). We introduce the concept and operationalization of work patterns, which, until now, have hardly been considered. This concept has been fruitful and useful, with both theoretical and practical significance.

This study also has important practical implications. Its results contribute to existing knowledge about the need of occupational health to increase its efforts towards improving the design of indoor environments [7]. Additionally, our study provide evidence for the importance of considering different types and situations of office workers, which can be useful to prevent work-related illness, and thus improving workers' performance. The results indicate that workers who perform complex and interactive tasks are especially affected by indoor environment through different mediation chains, which in turn have a more negative influence on their health. This

suggest that workers who perform complex and interactive tasks could need special support from the organization that could include special attention paid to ensuring optimal indoor environment to prevent health problems and absenteeism. Moreover, this results provide important information about the proper design of a workplace that fosters performance and ensures well-being at work, as it shows that an inadequate indoor environment affect employees well-being and performance (absenteeism). Thus, managers should pay attention to offices indoor environment (temperature, noise, etc.) to prevent workers health problems and increase their well-being and performance. Due to the long hours office workers spend in their workplace, and the impact that these environments have on their health [3], it is necessary to recognize the relevance and particular characteristics of employees' health and well-being in different types of office work, in order to understand how we should approach this topic and improve workers' health while ensuring their productivity.

Conclusion

This study highlights the important role of work patterns when studying the mediation paths through which the indoor environment influences absenteeism in office workers. This approach to the study of the relationships between different work-related antecedents and outcomes and their boundary conditions according to different work patterns is novel and reveals important distinct characteristics and implications.

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ESTUDIO 3

**FROM OFFICE ENVIRONMENTAL STRESSORS
TO WORK PERFORMANCE: THE ROLE OF
WORK PATTERNS**

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From Office Environmental Stressors to Work Performance: The Role of Work Patterns

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Abstract: *Background:* Different studies have shown a relationship between office environmental stressors and performance. However, studying environmental stress in the workplace requires analyzing more specific patterns to generate knowledge about the type of employees who are more or less vulnerable to environmental stressors. The present study analyzes the mediating role of health symptoms and negative emotions in the relationship between stressors and performance in different work patterns (task complexity and interactivity). *Methods:* There were 83 office workers (n = 603 time points) that took part in a diary study with multilevel design. *Results:* The appraisal of the environmental stressors is positively related to health-related symptoms, which in turn increase negative emotions, and then decrease the performance of workers who perform complex tasks and interact frequently with other people at work. This mediation is not significant when office workers do not interact frequently with other people at work and/or perform simple, rather than complex tasks. *Conclusions:* Work patterns play an important role when studying the mediating role of health-related symptoms and negative emotions in the relationship between the appraisal of environmental stressors and performance in office workers. In other words, employees in the ‘interactive and complex’ pattern

are more vulnerable to the negative effects of office stressors on performance.

Keywords: environmental stressors; health-related symptoms; negative emotions; performance; work patterns

Introduction

More than 50% of the world's workers spend long hours in offices [1], and this environment has an important impact on their health [2], well-being [3], and quality of life [4]. Indoor environmental quality may affect physiological processes such as thermal regulation [5] or immune system ailments, and disabilities that, in turn, can influence task performance, which might interact with other factors to affect overall productivity [6]. Therefore, it is important to consider the effects of indoor environmental quality on office workers' health and performance [7], and to introduce improvements when necessary, because they might be beneficial for the employee and lead to financial gains [8] for the organization. Work in offices can involve different activities that can be characterized by the amount of interaction with other people at work and the degree of complexity of the tasks. The combination of these two variables give rise to different work patterns. Researchers have shown that factors such as task complexity or interaction with other people may be potential boundary conditions for the effects of different work-related variables, influencing work outcomes [9]. However, the role of these work patterns in the relationship between the environmental stressors and health, well-being, and work performance has hardly been studied [10–12]. The purpose of the present study is to analyze the relationship between the appraisal of environmental stressors and performance, taking into account the mediating role of health-related symptoms and negative emotions, in different work patterns.

Given the importance of the workplace, it is surprising that most researchers have hardly considered the effects of the environmental stressors on productivity and well-being in different situations [5]. Understanding the mechanisms through which performance is affected would help us to better understand previous findings on the effects of the environmental stressors on performance [13]. In addition, knowing more about this effect in each work pattern would provide useful information regarding the most appropriate workplace design, to foster performance and ensure well-being at work in different types of office work.

The Impact of the Appraisal of Environmental Stressors on Workers' Performance

Environmental psychology theory suggests that people's environment has an impact on their behavior [14]. Environmental stressors are defined in terms of workers' perceptions of discomfort in the indoor environment [15] (i.e., temperature and noise). There are many examples of situations where environmental stressors can influence human performance; however, some of the International Organization for Standardization (ISO) standards have considered human performance in a simple way. Therefore, a strategy for producing international standards was agreed on to consider human performance in physical environments [16]. The initial proposal for this framework considers three main reasons a physical environment might influence human performance [16], namely: (1) the physical environment's interference with human function or activity; (2) the distraction caused by the physical environment and, hence, related to time off the task and work; and (3) the time involved in suspended work due to physical environments, beyond environmental health and safety limits. The interest in how the work environment affects employees has grown in recent decades in organizational psychology, with mounting evidence showing that the workspace affects the way people perform [17],

and that the environmental stressors directly influence workers' performance [18] and productivity [5] rates. For example, the results of several studies indicate that changes in temperature of a few degrees Celsius within the 18 °C to 30 °C range can significantly influence workers' performance on several tasks, such as typewriting or reading speed and comprehension [18]. Along these lines, as discussed by the National Electrical Manufacturers Association [19], lighting has the theoretical potential to influence performance directly, because work performance depends on vision. Furthermore, in a New England survey described in the U.S. Environmental Protection Agency's 1989 report to Congress, the average self-reported productivity loss due to poor indoor air quality was 3%. Finally, workers in open plan workspaces tend to cite noise as a cause of reduced productivity [20]. We consider, therefore, that offices' environmental conditions will have an important impact on the work performance of their occupants. Taking into account the results obtained in previous research, we suggest that there should be a negative relationship between the appraisal of environmental stressors and office workers' performance. Therefore, we formulate the following hypothesis:

Hypothesis 1. *The appraisal of environmental stressors will be negatively related to workers' performance.*

The Mediating Role of Negative Emotions between the Appraisal of Environmental Stressors and Performance

The environment can influence the emotions that people experience, and these emotions, in turn, can impact performance [21] (e.g., through approach–avoidance behavior [14]). In this line, being forced to work under unpleasant conditions can have negative consequences for affective well-being [22]. For example, temperatures that are too warm or too cool may produce negative emotions [23]. Moreover, office

environment characteristics such as poor air quality or noise have been found to predict office workers' negative emotions, such as anger, irritation, frustration, sadness or depression, worry, nervousness, and anxiety [24]. Additionally, the happy-productive worker thesis states that 'happy' workers perform better than 'unhappy' ones [25,26]. Therefore, employees with higher levels of negative emotions should perform worse than happy employees [27], because, when people feel worse than they usually do, they make less effort on their tasks [28] and achieve lower levels of task performance [29]. Moreover, people with low affective well-being tend to devise less imaginative solutions to problems [30]. With this in mind, we expect to find a relationship between the appraisal of environmental stressors and office workers' negative emotions, and between office workers' negative emotions and their performance. Therefore, we formulate the following hypothesis:

Hypothesis 2. *Office workers' negative emotions will mediate the relationship between their appraisal of environmental stressors and their performance.*

The Mediating Role of Health-Related Symptoms and Negative Emotions between the Appraisal of Environmental Stressors and Performance

Several building factors (e.g., ventilation system, rate of air ventilation, and indoor temperature) have been linked to the prevalence of acute building-related health symptoms experienced by the building's occupants. These symptoms, which include irritation of the eyes, nose, and skin; headache; fatigue; and difficulty breathing, are most commonly reported by office workers [18]. In this regard, researchers increasingly find links between the employees' health and aspects of the indoor environment at work, such as indoor air quality or lighting [31]. Improving the indoor work environment has been reported to result in a reduction in the number of physical complaints [5]. In turn, health-related symptoms, like headache or sore

throat, are strongly related to people's affectivity [32]. Some studies, although not referring directly to the health-related symptoms and negative emotions relationship, clearly suggest that there may be a positive relationship between these variables. They point out that self-report health measures show a pervasive mood of negative affectivity [33], and that health status is one of the most influential predictors of affective well-being, as people with an unfavorable self-reported health status have almost three times the odds of experiencing more negative emotions [34]. Taking these studies into account, and considering the happy-productive worker thesis [27], we expect that health-related symptoms will play a mediating role in the relationship between the appraisal of environmental stressors and negative emotions, which, in turn, will decrease performance. Therefore, we formulate the following hypothesis:

Hypothesis 3. *There will be an indirect effect of the appraisal of environmental stressors on performance through office workers' health-related symptoms and subsequent negative emotions.*

The Role of Work Patterns

Although different studies have shown a relationship between environmental stressors and performance [5,17,19,20], the relationship between some indoor conditions (i.e., lighting and temperature) and performance in typical office work still remains unclear [18]. Understanding stress in the workplace requires studying more specific patterns in order to generate knowledge about the type of employees that are more or less vulnerable to environmental stressors [35]. In the present study, we hypothesize that some psychosocial work characteristics may play an important role in this relationship. It has been established that work patterns (understood as configurations of work tasks, depending on their complexity and whether or not they imply interaction) can be relevant in different outcomes at work [9], establishing

boundary conditions in these relationships. In other words, the work characteristics such as the complexity of tasks and interaction demands may moderate the relationship between environmental stressors and performance. Depending on the tasks employees are performing, they can be more or less affected by environmental factors [17]. Additionally, the detrimental effects of these demanding work patterns on well-being and performance may increase with longer working hours [36–38].

Firstly, the job stress theory [35] proposes that people's appraisal of stressors depends on the balance of power between the environmental demands and the ability of the person to manage them. Secondly, activation theory [39] suggests that an individual's activation level is directly related to the intensity, variation, uncertainty, and meaningfulness of the stimulus. This theory proposes that there is an optimal activation level, and when the activation is too low or too high, the workers' performance decreases [40]. Therefore, we understand that, when an employee is working in a highly demanding environment because of environmental stressors and, simultaneously, has to carry out highly complex tasks that require additional mental effort, or has to interact with other people at work, the optimal activation level will be exceeded as the ability to manage those stressors may not be enough, which, in turn, will negatively affect the employee's performance. With this in mind, each workspace can provide more or less support for people performing specific tasks that have specific environmental requirements. The more appropriate the space is for the task to be carried out, the more comfortable it is for the user, and the more it fosters task performance [17]. Dealing with a stressful workspace takes up the time and attention of its users, which, for employers, represents the time and attention taken from workers' performance [17]. Moreover, the existence of a 'cognitive reserve' that allows people to maintain their performance during short exposure, even when indoor

conditions are unfavorable [41], may not be enough to deal with complex tasks or to interact with other people at work at the same time.

Therefore, we suggest that work patterns should play an important moderating role in the relationship between the appraisal of environmental stressors and office workers' performance through office workers' health-related symptoms and negative emotions. Therefore, we formulate the following hypothesis:

Hypothesis 4. *The effects of the appraisal of environmental stressors on performance through office workers' health-related symptoms and negative emotions will be stronger in the workers who perform complex tasks and interact frequently with other people at work, compared to those who perform simple tasks and/or do not interact frequently with other people at work.*

Additionally, the relationship with the environment is constantly changing; environmental stressors may change across time and also patterns of coping with these stressors vary from one stressful encounter to another, and over time [42]. Furthermore, performance is also a dynamic phenomenon that may change across time and situation, as employees perform their tasks at work along the working day and week [43]. Thus, it is necessary to analyze the relationship between these variables using a methodological approach that considers states, which change across time. In this sense, a diary study allows us to focus on states [44] and to reduce measurement error (increasing validity and reliability) [45].

Therefore, the main objective of this study is to analyze the relationship between the appraisal of environmental stressors and performance, taking into account the mediating role of health-related symptoms and negative emotions, in different work patterns. Figure 1 graphically represents the model to be tested in the study.

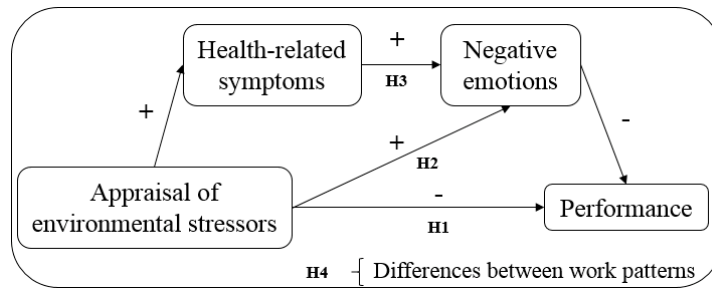


Figure 1. The proposed research model in this study.

Materials and Methods

Sample and Procedure

In the present study, we collected data using a diary study and a baseline questionnaire completed by 83 office workers from five companies in the Valencian Community (Spain). Of the sample, 33% were men. The participants ranged in age from 20 to 62 years old ($M = 39.67$; $SD = 8.84$). Of the sample, 85% have at least a university degree.

The employees were asked to answer the questionnaire twice a day, once in the morning (after at least two hours at the workplace) and once in the afternoon, on four consecutive days. We aimed to collect the data from each of the employees in their offices at the same time in the morning and in the evening; however, because some of the respondents were away from the office during part of the workday, we failed to collect data at the 61 time points. Therefore, we obtained 603 data collection points. The employees' work patterns were measured using baseline questionnaires administered between 1 and 4 days before the diary data collection week. The participants were informed that their participation in the study was voluntary, and they could withdraw from the study at any time. In addition, measures were taken to ensure the confidentiality of the data, and the study was approved by the institutional ethics committee.

Measures

The diary questionnaire assessed the state measures of appraisal of the environmental stressors, health-related symptoms, negative emotions, and performance. These measures reveal the participants' levels on these characteristics on the specific occasions tested. Firstly, the 'appraisal of environmental stressors' was measured with a seven-item scale, based on a measure used by Andersson [46]. The person was asked to evaluate the extent to which he/she had been bothered by several factors at the workspace (noise, temperature, air quality, and light) in the past couple of hours (sample item, "temperature too high"). The response scale ranged from 1 (not at all) to 7 (very much). The mean Cronbach's α for the scale at the eight time points was 0.70.

Secondly, 'health-related symptoms' (e.g., respiratory problems, headaches, and difficulties concentrating) due to the work environment were measured with a 10-item scale (sample item, "feeling heavy-headed"), which were adapted from Andersson [46]. The participants were asked to rate the extent to which they had experienced different health-related symptoms in the past couple of hours, on a response scale ranging from 1 (not at all) to 7 (very much). The mean Cronbach's α for the scale at the eight time points was 0.84.

Thirdly, 'negative emotions' were measured with a seven-item scale (sample item, "depressed") [47,48]. The employees were asked to rate the extent to which they had experienced different negative emotions in the past couple of hours, using a response scale ranging from 1 (not at all) to 7 (very much). The mean Cronbach's α for the scale at the eight time points was 0.84.

'Work performance' was measured with a six-item scale (sample item "now I fulfill all the requirements for my job") assessing office workers' in-role and extra-

role performance [49,50]. The respondents were asked to evaluate to what extent they agreed with the different statements about their performance in the past couple of hours, using a response scale ranging from 1 (not at all) to 7 (very much). The mean Cronbach's α for the scale at the eight time points was 0.76.

Finally, 'work patterns' were measured by two items (sample item, "how often your job require do complex tasks?"), referring to the frequency of performing complex tasks and the frequency of interacting with other people at work. The response scale ranged from 1 (never) to 4 (very often).

Data Analysis

In the first part of the analyses, the sample was divided into groups using two-step cluster analysis in SPSS v.22 (SPSS Inc., Chicago, IL, USA), and considering two variables (i.e., work patterns), namely the task complexity and interaction with other people at work. This method is derived from a probabilistic model in which the distance between two clusters is equivalent to the decrease in the log-likelihood function as a result of merging [51]. Its algorithm is based on a two-step approach; firstly, it uses a similar procedure to the k-means algorithm; secondly, considering these results, a modified hierarchical agglomerative clustering procedure is carried out that combines the objects sequentially to form homogenous clusters. This method offers fit information such as the Bayesian Information Criterion (BIC), as well as information about the importance of each variable in the construction of a specific cluster [52], which is an additional attractive feature of the two-step cluster method compared to traditional clustering methods. As all of the variables used in this study were independent and had a normal distribution (kurtosis and skewness ± 2 , [53]), we used the log-likelihood approach [54].

In the second part of the analyses, we carried out multi-level structural equation

modeling (MSEM) to determine the relationships between the variables of interest in the different work patterns. To this end, we used a diary and multi-level design, as for each employee, the data on two levels were available, namely the time-level and the person-level, with the time-level data being nested within the person-level data. As the following section shows, because only seven subjects belonged to the first work pattern, we continued with the MSEM analysis, taking into account only the participants who formed part of the other three work patterns. This led to a two-level model with the repeated measures at the first level (N = 549 study occasions) and the individual participants at the second level (N = 76 participants). As we were interested in the relationships between variables at the individual level, we focused on assessing the relationships at the 'person level' (i.e., level-2 or between-level), which takes into account between-person variations. A diary study allows us to focus on states, which change across time and reflect how an individual feels at certain points in time [44]. In order to carry out multi-level, multi-group structural equation modeling, we used MPlus software [55]. To test the significance of the indirect effects, we produced confidence intervals using the Monte Carlo method for assessing mediation (MCMAM) [56] with 20,000 repetitions.

In order to assess the model fit, we examined the root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker–Lewis index (TLI), and root mean square residual (SRMR) goodness of fit statistics. For the ML method, a cutoff value close to 0.06 for RMSEA, a cutoff value close to 0.95 for CFI and TLI, and a cutoff value close to 0.08 for SRMR are necessary before we can conclude that there is a relatively good fit between the hypothesized model and the observed data [57].

Results

Two-step Cluster Analyses

The auto-clustering algorithm of the two-step cluster analyses indicated that a four-cluster solution was the best model because it minimized the BIC value (101.860) and the change in them between adjacent numbers of clusters selection criteria (-3.222). All of the predictors (task complexity and interaction) explained at least 78% of the cluster analysis results, and the average silhouette was 0.6. Four clusters emerged as follows: (1) employees who work alone and perform simple tasks (i.e., ‘alone, low complexity’); (2) employees who sometimes interact with other people at work and perform complex tasks (i.e., ‘middle interactive, high complexity’); (3) employees who frequently interact with others and perform simple tasks (i.e., ‘high interactive, low complexity’); and (4) employees who frequently interact with other people at work and perform complex tasks (i.e., ‘high interactive, high complexity’). The first group (‘alone, low complexity’) was not taken into account in the following analyses as a result of the low number of participants ($n = 7$). Therefore, the final sample was composed of 76 workers divided into three groups (work patterns). The descriptive analyses are shown in Table 1. We carried out variance analyses (ANOVA) and chi² significance tests for the differences in the demographic variables between the clusters in each combination. No differences were found between groups, except for the sex variable, as the ‘middle interactive, high complexity’ pattern has more men than the ‘high interactive, high complexity pattern’ ($p = 0.03$).

Table 1. Work patterns: sample characteristics.

Middle Interactive,	High Interactive,		High Interactive,	Chi2	P
	High Complexity (n = 32) n (%)	Low Complexity (n = 23) n (%)	High Complexity (n = 21) n (%)		
Age 1	41.09 (8.14)	37.96 (9.86)	38.67 (8.05)	1.001	0.37
Sex 2					
Female	17 (22.4%)	17 (22.4%)	18 (23.7%)	6.693	0.03
Male	15 (19.7%)	6 (7.9%)	3 (3.9%)		
Highest educational level reached 2					
High school	1 (1.3%)	0 (0.0%)	0 (0.0%)		
Professional training	4 (5.3%)	3 (3.9%)	3 (3.9%)		
University degree (Graduated)	8 (10.5%)	7 (9.2%)	4 (5.3%)	5.737	0.67
University degree (MA, Msc)	18 (23.7%)	11 (14.5%)	10 (13.2%)		
PhD	1 (1.3%)	2 (2.6%)	4 (5.3%)		
Job level 2					
Manager	1 (1.3%)	0 (0.0%)	2 (2.6%)		
Highly-qualified professional	12 (15.8%)	5 (6.6%)	10 (13.2%)		
Technician	8 (10.5%)	7 (9.2%)	5 (6.6%)	12.923	0.11
Administrative	10 (13.2%)	11 (14.5%)	2 (2.6%)		
Junior employees	0 (0.0%)	0 (0.0%)	0 (0.0%)		
Other	1 (1.3%)	0 (0.0%)	2 (2.6%)		
Marital status 2					
Single	10 (13.2%)	4 (5.3%)	6 (7.9%)		
Married/living with partner	21 (27.6%)	19 (25.0%)	15 (19.7%)	2.945	0.56
Widowed	0 (0.0%)	0 (0.0%)	0 (0.0%)		
Separated/divorced	1 (1.3%)	0 (0.0%)	0 (0.0%)		
Salary 2					
Less than 600€	2 (2.6%)	1 (1.3%)	2 (2.6%)		
600€-1000€	1 (1.3%)	2 (2.6%)	1 (1.3%)		
1000€-1499€	14 (18.4%)	11 (14.5%)	7 (9.2%)	12.397	0.25
1500€-1999€	5 (6.6%)	8 (10.5%)	7 (9.2%)		
2000€-3000€	10 (13.2%)	1 (1.3%)	3 (3.9%)		
More than 3000€	0 (0.0%)	0 (0.0%)	1 (1.3%)		

Note. $n = 76$; 1 Means, standard deviations, and variance analyses (ANOVA). 2 The number in parentheses represents the percentage of the total.

Multi-Level, Multi-Group Structural, Equation Modeling

Table 2 presents the descriptive statistics for the levels of the variables of interest in the current study. To test the predictive validity of the coping factors at both levels of the nested data structure, structural equation modeling for multi-level data (MSEM) was used to predict office workers' performance. The model fit was excellent, as follows: RMSEA = 0.000, CFI = 1.000, TLI = 1.075, SRMR (Within/Between) = 0.020/0.032.

Table 2. *Descriptive statistics for the levels of the variables of interest in the current study*

	Middle interactive, High complexity		High interactive, Low complexity		High interactive, High complexity	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Appraisal of environmental stressors t1	2.13	0.96	1.92	0.74	2.31	0.83
Appraisal of environmental stressors t2	2.35	0.99	2.19	0.90	2.30	0.90
Appraisal of environmental stressors t3	1.96	0.95	1.88	0.75	2.17	0.85
Appraisal of environmental stressors t4	2.12	1.09	1.95	0.86	2.27	1.02
Appraisal of environmental stressors t5	1.94	0.96	1.99	1.02	2.00	0.92
Appraisal of environmental stressors t6	2.14	1.06	2.12	1.00	2.16	0.97
Appraisal of environmental stressors t7	1.94	1.00	1.98	0.95	2.02	0.76
Appraisal of environmental stressors t8	2.11	1.14	2.06	1.00	2.09	0.85
Health-related symptoms t1	1.83	0.94	1.87	0.81	2.08	0.91
Health-related symptoms t2	2.01	0.99	2.18	0.95	2.25	1.02
Health-related symptoms t3	1.54	0.65	1.57	0.66	1.83	0.88
Health-related symptoms t4	1.80	0.85	1.87	0.85	2.35	1.32
Health-related symptoms t5	1.55	0.64	1.70	0.57	1.98	1.02
Health-related symptoms t6	1.80	0.91	2.03	0.97	2.25	1.02
Health-related symptoms t7	1.56	0.70	1.53	0.62	1.89	1.11
Health-related symptoms t8	1.80	0.87	1.80	0.84	2.09	0.98
Negative emotions t1	2.14	1.19	2.32	1.16	2.40	1.13
Negative emotions t2	2.15	1.14	2.24	1.10	2.25	0.91
Negative emotions t3	1.85	0.81	1.97	1.01	2.14	1.36
Negative emotions t4	2.02	1.00	2.13	1.36	2.34	1.20
Negative emotions t5	1.90	0.97	1.76	0.73	1.99	1.17
Negative emotions t6	2.22	1.13	1.86	0.58	1.95	0.77
Negative emotions t7	1.84	0.93	1.64	0.72	1.77	0.88
Negative emotions t8	2.06	1.20	1.87	1.03	2.01	0.94
Performance t1	5.08	0.96	4.88	0.79	5.23	1.16
Performance t2	5.06	0.99	4.76	1.04	5.09	0.96
Performance t3	5.06	0.96	4.77	1.25	4.92	1.07
Performance t4	5.06	1.10	5.00	1.09	5.33	1.01
Performance t5	5.02	1.07	4.99	0.90	5.21	0.99
Performance t6	5.07	1.09	4.81	1.04	5.30	1.08
Performance t7	5.29	0.97	4.96	1.08	4.82	0.90
Performance t8	5.10	1.07	4.84	1.11	4.82	0.88

Figure 2 presents the results of the Multi-level multi-group structural equation modeling analyses, and Table 3 presents the results of the Monte Carlo method for assessing the mediation for the different groups.

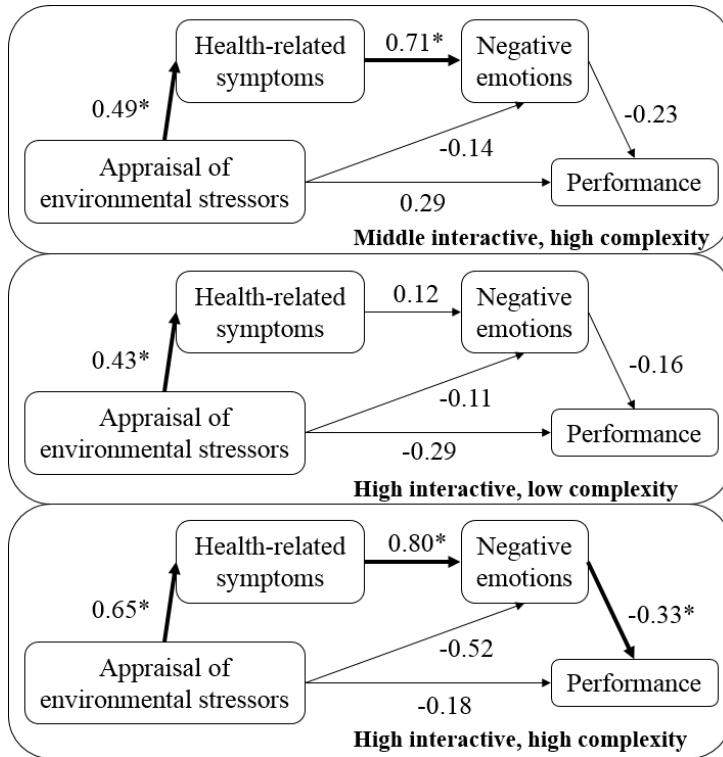


Figure 2. Multi-level multi-group structural equation modeling. * $p < 0.05$.

Table 3. Monte Carlo Simulation for the indirect effects

	Middle interactive, high complexity		High interactive, low complexity		High interactive, high complexity	
	Lower	Upper	Lower	Upper	Lower	Upper
Negative emotions path	-.03	.23	-.09	.15	-.01	.59
Health-related symptoms- Negative emotions path	-.24	.03	-.10	.04	-.51	-.01

Regarding the direct effect of the appraisal of environmental stressors on workers' performance, the results do not provide support for Hypothesis 1, as they were not significant for any of the work patterns ($p > 0.05$). The same results were obtained for the mediating role of negative emotions, as the results do not support hypothesis 2 for the 'middle interactive, high complexity' group [LL -0.03 ; UL 0.23], the 'high interactive, low complexity' group [LL -0.09 ; UL 0.15], or the 'high interactive, high complexity' group [LL -0.01 ; UL 0.59]. In the case of hypothesis 3, the results give partial support, as a significant indirect effect through health-related symptoms and negative emotions was found for the 'high interactive, high complexity' pattern [LL -0.51 ; UL -0.01], but not for the 'middle interactive, high complexity' pattern [LL -0.24 ; UL 0.03] or the 'high interactive, low complexity' pattern [LL -0.10 ; UL 0.04]. Therefore, the results support hypothesis 4, as the effects of the appraisal of environmental stressors on performance through office workers' health-related symptoms and negative emotions were stronger in workers who performed complex tasks and frequently interacted with other people at work, compared to those who performed simple tasks and/or did not have to interact frequently with other people at work.

Discussion

The aim of this study was to analyze the relationship between the appraisal of environmental stressors and performance, taking into account the mediating role of health-related symptoms and negative emotions, in different work patterns. Regarding the direct effect of the appraisal of environmental stressors on workers' performance, the results show that there is no significant direct effect in any of the work patterns. The same results were obtained for the mediating role of negative

emotions. For the double mediation, the results showed a significant indirect effect through health-related symptoms and negative emotions for the ‘high interactive, high complexity’ pattern, but not for the ‘middle interactive, high complexity’ pattern, or the ‘high interactive, low complexity’ pattern. Therefore, the effects of the appraisal of environmental stressors on performance through office workers’ health-related symptoms and negative emotions were stronger for the ‘high interactive, high complexity’ work pattern than for the other patterns.

Thus, in contrast to the literature [5,18], the results show that the direct relationship between the appraisal of environmental stressors and performance was not significant. With regard to the indirect effect, on the one hand, and in contrast to previous studies [23,24,27], the indirect relationship between the appraisal of environmental stressors and performance through negative emotions was not significant. On the other hand, as expected, taking into account the existing literature [5,27,29,34], the double mediation through health-related symptoms and negative emotions, in that order, was significant for the ‘high interactive, high complexity’ pattern, but not for the ‘middle interactive, high complexity’ or ‘high interactive, low complexity’ patterns. These results can be explained based on the activation theory [39] and the job stress theory [35]. The first one says that there is an optimal activation level, and when this level is exceeded (e.g., appraisal of environmental stressors, task complexity, and interaction with other people at work), workers’ performance declines [13]. The second one, proposes that the workers’ appraisal of stress depends on the balance of power between the environmental demands and the ability of the person to manage them, thus to many demands (e.g., appraisal of environmental stressors, task complexity, and interaction with other people at work) may decrease performance.

The main contribution of this study is that it analyzes the role of work patterns in

the relationships between the appraisal of environmental stressors, office workers' health-related symptoms, negative emotions, and performance. Furthermore, the present study uses a diary study design that allows us to pay attention to states, which vary over time and reflect how an individual feels at certain points in time, rather than understanding well-being as an overall judgement related to long periods, disregarding its variability. Although this study did not describe changes across time, it allows us to control the variability of these variables by reducing the measurement error (increasing validity and reliability) [44].

Despite its contributions, the present study has some limitations. Firstly, in the present study, we used self-reported measures of state performance. Even though strong congruence has been found between company records and workers' self-reports [58], and workers' self-reports are more controversial in the case of general judgments than on diary-state measures [59], future studies could compare these self-reports to other more objective measures. Secondly, as a result of the sample limitations, we have not taken the work pattern "Alone, low complexity" into account, and so, it would be necessary to increase the sample and investigate these relationships in the four work patterns in future studies. The results of the present study suggest that future research should investigate these relationships in different occupational samples, and consider other relevant aspects that may play an important role in work pattern configurations. Thirdly, future studies should consider the effect of the moment when the data collection took place (i.e., season), because the workplace temperature may vary depending on this moment. However, the temperature in Valencia is quite similar during the months when we collected the data [60]. Finally, we have to recognize that associations between environmental stressors and performance are extremely complex. For example, the present study does not

take into account how many hours the employees spend at their workplace under the influence of this environment. Different studies have shown the effect of long work hours on workers' performance and well-being [36–38], probably due to the impact on fatigue [61].

Our findings have important theoretical implications. Firstly, in this study, we take into account different constructs that play a mediating role in the relationship between the appraisal of environmental stressors and performance. Secondly, we consider the role of work patterns in these associations, which, until now, had hardly been examined. This concept has been fruitful and useful, with both theoretical and practical significance. Furthermore, we understand that the appraisal of environmental stressors, health-related symptoms, negative emotions, and performance vary over time, and our study design allows us to study these changes across time.

This study also has important practical implications. Its results highlight the importance of providing an adequate workspace, in terms of the indoor environment, in different office worker situations. Moreover, they offer important information about the implications of exposure to environmental stressors for office workers' performance and well-being. Furthermore, this study can provide important information for supervisors and managers regarding human resources practices for different groups of employees. Taking work patterns into account can be useful in time management or task assignment, considering the specific aspects of each task (task complexity and task interaction). Thus, this study emphasizes the importance of optimizing environmental stressors, highlighting that workers who perform complex tasks and interact with other people at work are more impaired by environmental stressors. Therefore, future studies should analyze how organizations or supervisors

might support employees in general, and this group in particular, to enhance their well-being and performance. Optimizing environmental stressors is an important first step; however, it may also be necessary to take other factors into account to compensate for these highly demanding tasks (i.e., offering adequate workspaces, such as individual offices that facilitate the performance of these tasks). The study also provides orientations for organizational psychologists; they can organize activities such as training courses that consider the specific characteristics of each group of office workers. As a result of the long hours office workers spend in their workplaces, and the impact these environments have on their health [2], it is necessary to recognize the relevance and specific characteristics of the employees' health and well-being in different types of office work, in order to understand how we should approach this topic and improve the workers' health while ensuring their performance.

Conclusions

This study highlights the important role of work patterns when studying the mediating effect of health-related symptoms and negative emotions in the relationship between the appraisal of environmental stressors and performance in office workers. This approach to the study of the relationships between different work-related variables and their boundary conditions according to different work patterns is novel and reveals their distinct characteristics and implications. Knowledge about their different characteristics and implications is important in order to carry out preventive actions that can foster performance and well-being at work in office workers' different situations.

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ESTUDIO 4

**THE ROLE OF EMPLOYEES' WORK PATTERNS
AND OFFICE TYPE FIT (AND MISFIT) IN THE
RELATIONSHIPS BETWEEN EMPLOYEE WELL-
BEING AND PERFORMANCE**

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The Role of Employees' Work Patterns and Office Type Fit (and Misfit) in the Relationships Between Employee Well-Being and Performance

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Abstract

Nearly half of workers agree that their workspace is unsuitable for their work tasks. Furthermore, it is assumed that happy workers often perform better than unhappy ones. Nevertheless, due to the effect of the emotional- cognitive processes, the misfit between employees' office type and their work patterns (complexity and interactivity) may hamper this relationship between well-being and performance. This diary study on 83 office workers ($n = 603$ time points) combines information about work patterns identified by using cluster analysis with Neufert's office type classification. Results show that the work pattern-office type (mis)fit moderates the relationship between well-being and performance. The "fit" group shows four out of six positive associations: flow and positive emotions with in-role performance, and positive emotions and activity worthwhileness with extra-role performance. The "misfit" group shows only one out of six positive associations. Thus, the office environment-work pattern fit has a relationship to in-role and extra- role performance.

Keywords: (mis)fit, work pattern, office type, well-being, performance

Introduction

Despite efforts to introduce new design solutions in offices (World Green Building Council, 2014), almost 50% of workers report that their workspace is not adequate for the work they do (JLL Corporate Solutions, 2017). Workers who perceive their offices to be unsuitable for their work tasks tend to report worse job outcomes that involve their well-being and performance processes (Danielsson, 2010; De Clercq, Fontaine, & Anseel, 2008; Vischer, 2007). Providing adequate work environments is a main feature of office design today; however, empirical research in this area is needed (Wohlers, Hartner-Tiefenthaler, & Hertel, 2017).

According to the “happy-productive worker” thesis, a happy worker will perform better than an unhappy one (Cropanzano & Wright, 1999; Judge, Thoresen, Bono, & Patton, 2001). Well-being has been conceptualized from two distinct perspectives (Rosso, Dekas, & Wrzesniewski, 2010): hedonic and eudaimonic. However, until recently, well-being was mainly studied from the hedonic perspective, at the expense of the person’s eudaimonic well-being. The hedonic perspective refers to a view of pleasure and experience of positive emotions (e.g., Diener, 2000), and the eudaimonic perspective refers to a view of “worthwhileness” (reward), associated with the activities carried out at work (White & Dolan, 2009), and flow, which involves staying “focused” and “engaged” in the task (Csikszentmihalyi, 1990). Therefore, we take into account the three different ways to be happy in the work context (Peterson, Park, & Seligman, 2005): through pleasure (e.g., positive emotions), through flow, and through meaning (e.g., activity worthwhileness).

We understand performance to be “a function of a person’s behavior and the degree to which this behavior helps the organization to obtain its goals” (Ford,

Cerasoli, Higgins, & Decesare, 2011, p. 187, see also Motowidlo, Borman, & Schmit, 1997). In this regard, we distinguish between two major types of performance: *in-role performance* (i.e., carrying out formal tasks, such as those included in a job description; Williams & Anderson, 1991) and *extra-role performance* (i.e., carrying out activities that are important for the organization but optional in nature, such as helping others; Moorman, Niehoff, & Organ, 1993). These components of performance should be considered separately because some authors have suggested that they work differently (Motowidlo & Van Scotter, 1994): (a) in-role performance includes prescribed activities that vary between jobs, whereas extra-role performance activities are more discretionary and, thus, more similar across jobs, and (b) in-role performance activities are related to ability, whereas extra-role performance activities are related to characteristics such as personality and motivation.

Although the happy-productive worker thesis is the most commonly used framework to explain the relationship between well-being and performance, empirical evidence has not always supported this association (Gelderen & van Bik, 2016; To, Fisher, & Ashkanasy, 2015). For example, some meta-analyses show weak, spurious, and nonsignificant relationships between well-being and performance (A. Bowling, 2007; Iaffaldano & Muchinsky, 1985; Judge et al., 2001). To explain these mixed results, researchers (Rego, 2009; Warr, 2007) suggest that moderating variables may affect the strength of the relationship between well-being and performance. This assumption is supported by empirical results indicating that there can be moderators in the well-being–performance relationship (Fogaça & Coelho, 2016), although research in this area is still scarce (Chi, Chang, & Huang, 2015).

Along these lines, work in offices is carried out in different ways that can be

characterized by the degree of task complexity and the interaction with others at work, giving rise to different work patterns (Soriano, Kozusznik, & Peiró, 2015) that can have specific environmental requirements (e.g., adequate office types). As Neufert (1995) proposes, office spaces can differ and be divided into the following categories: cellular offices, group offices, and open-plan offices. These spaces, in turn, can be appropriate for different types of work. Based on theoretical considerations of person–environment fit (Kaplan, 1983), the person–organization fit model (Chatman, 1989), and the available empirical evidence (De Clercq et al., 2008), the effects of the fit between the office environment and the tasks/type of work carried out might explain the spurious results obtained within the happy-productive worker thesis. Specifically, job resources (such as type of office) are important situational factors (Perry-Smith & Shalley, 2003; Woodman, Sawyer, & Griffin, 1993). In addition, different work patterns require different demands depending on the task characteristics (Soriano et al., 2015). Furthermore, the degree of fit between a resource and a demand affects the relationship between workers’ well-being and performance (Carlson, 1969).

The purpose of the present study is to extend prior work in this area by examining the moderating role of the fit or misfit between an employee’s work pattern and his or her office type in the relationship between employee well-being (i.e., positive emotions, activity worthwhileness, and flow) and performance (i.e., in-role and extra-role performance). We also analyze whether these relationships vary depending on the conceptualization of well-being and performance (hedonic vs. eudaimonic well-being and in-role vs. extra-role performance).

Studying the consequences of the (mis)fit between office type and work patterns can allow companies to design offices that promote employees’ well-being and performance, which is currently an important challenge in the area of office design

(World Green Building Council, 2014).

The Relationship Between Hedonic Well-Being and Performance

Traditionally, hedonic well-being has been understood as happiness, positive emotions, and life satisfaction (Ryff, Keyes, & Hughes, 2003). According to the broaden-and-build theory (Fredrickson, 2001), positive emotions broaden the scope of attention and thought-action repertoires, and promote the adoption of a “broad-minded coping” style (Fredrickson, 2001, p. 223). Thus, people who experience high levels of positive emotions might easily “build” novel and creative solutions to problems. Some evidence shows that hedonic well-being precedes important work outcomes, including fulfilling and productive work (Lyubomirsky, King, & Diener, 2005), possibly because when people feel better than they usually do (e.g., positive emotions), they expend more effort on their tasks (Seo, Bartunek, & Barret, 2010) and achieve a higher level of task performance (Seo & Ilies, 2009). Furthermore, people high in positive emotions tend to devise more imaginative solutions to problems (Staw & Barsade, 1993) and experience less interpersonal conflict (Bolger & Schilling, 1991). Positive emotions lead people to think, feel, and act in ways that promote both resource building and involvement with approach goals (Lyubomirsky, 2001). Furthermore, empirical studies link positive emotions to both in-role and extra-role performance (Van Woerkom & Meyers, 2015). In this regard, some studies have shown that a change in positive emotions over time is positively related to a change in proactive goal regulation over time. Proactive goal regulation is understood as performing well against a background of unpredictability and uncertainty, anticipating and acting on future problems (Bindl, Parker, Totterdell, & Hagger-Johnson, 2012). Taking into account the different operationalizations of performance, as well as the previous research on their relationship with hedonic well-

being, we formulate the following hypotheses:

Hypothesis 1a (H1a): Office workers' positive emotions will be positively related to their in-role performance.

Hypothesis 1b (H1b): Office workers' positive emotions will be positively related to their extra-role performance.

The Relationship Between Eudaimonic Well-Being and Performance

Although research on well-being has mainly been approached from the hedonic perspective, well-being can also be examined from the eudaimonic perspective (e.g., Dolan, 2014; Keyes, Shmotkin, & Ryff, 2002; Linley, Maltby, Wood, Osborne, & Hurling, 2009) as experiencing meaning at work (Rosso et al., 2010). Recent progress has been made in subjective well-being measures (Organisation for Economic Co-Operation and Development [OECD], 2013) that distinguish between hedonic (i.e., feelings or emotions) and eudaimonic aspects (i.e., experiences of activity worthwhileness and flow). Thus, well-being can be found in activities that people find “pleasurable” (Diener, 2000), with positive emotions and feelings of pleasure (Robertson & Cooper, 2011), and the “worthwhileness” experienced when performing these activities (White & Dolan, 2009).

Self-Determination Theory (Ryan & Deci, 2000) suggests that engaged employees or employees who consider their work activities to be meaningful will show enhanced performance, including persistence and creativity (Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997), which are key aspects of extra-role performance (Borman, Penner, Allen, & Motowidlo, 2001; Demerouti, Bakker, & Gevers, 2015). Some empirical studies provide evidence, for example, that workers perform better when they perceive meaning in their tasks (Niessen, Sonnentag, & Sach, 2012). Based on this idea, it is important to recognize the meaning-related

aspects of job tasks (Cartwright & Holmes, 2006) because this “worthwhileness” has been linked to positive outcomes for both the individual and the organization, in terms of organizational citizenship behavior (Maharaj & Schlechter, 2007) and organizational performance (Neck & Milliman, 1994).

Furthermore, research on the association between the eudaimonic components of well-being and performance is limited (Sonnentag, 2015). However, research on flow, understood as the holistic sensation people experience when they act with total involvement (Csikszentmihalyi & Csikszentmihalyi, 1988), or as a momentary form of eudaimonic well-being (Fullagar & Kelloway, 2009), has found it to be related to better performance (Engeser & Rheinberg, 2008; Nakamura & Csikszentmihalyi, 2005). Theoretically, flow may be associated with better performance for two reasons.

First, a better functional state is achieved during flow. Second, there is greater motivation to perform the activity again (Engeser & Rheinberg, 2008). In recent years, some researchers have expanded their focus, taking into account positive aspects of well-being at work, such as experiences of engagement (Sonnentag, 2015), with being “focused” and “engaged” considered the main factors to capture flow experiences at work (Csikszentmihalyi, 1990). In addition, the literature supports the idea that being engaged (Csikszentmihalyi, 1990) affects extra-role performance, such as organizational citizenship behavior (Saradha & Patrick, 2011) or proactive behavior (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008). Taking all of this into account, we formulate the following hypotheses:

Hypothesis 2a (H2a): The worthwhileness of office workers’ activity will be positively related to their in-role performance.

Hypothesis 2b (H2b): The worthwhileness of office workers’ activity will be positively related to their extra-role performance.

Hypothesis 3a (H3a): Office workers' flow will be positively related to their in-role performance.

Hypothesis 3b (H3b): Office workers' flow will be positively related to their extra-role performance.

The Moderating Role of the Work Pattern and Office Type Fit (and Misfit) in the Relationship Between Well-Being and Performance

Empirical results from the study of the relationship between well-being and performance have suggested that moderating variables may affect the strength of this relationship (Fogaça & Coelho, 2016; Rego, 2009; Warr, 2007). These moderating factors can include organizational and job-related characteristics that together can affect organizational outcomes (Baron & Tang, 2011; N. A. Bowling, 2010; Gyekye & Haybatollahi, 2015; Ibrahim, Al Sejini, & Al Qassimi, 2004).

In the 1970s, open-plan offices were adopted by many organizations and tend to prevail today (C. Bakker, De Aries, Kort, & Rosemann, 2017). However, it is important to recognize that the office type has an influence on different work outcomes that involve employees' well-being and performance processes (Danielsson, 2010; Jahncke, 2012). Studies have shown that work environments that are designed by considering the types of activities performed in them are beneficial for work outcomes (Gerdenitsch, Korunka, & Hertel, 2017). Therefore, organizations should establish the appropriate conditions to perform the activities in a suitable and supportive office environment (Danielsson, 2010).

Along these lines, in the case of job-related characteristics, work in offices can be carried out in different ways. It consists of a set of activities (Morgeson & Humphrey, 2006) designed to fulfill a number of functions that can form several configurations or profiles of work functions and tasks to be performed through

individual and/or collective behaviors. Some of these activities (i.e., information input, analyzing data, or documenting information, Hansen et al., 2014) are related to task complexity (which refers to a psychological experience, an interaction between task and personal characteristics, and depends on objective task characteristics) (Campbell, 1988), whereas other office work activities are related to interactions with others (e.g., communicating with supervisors or subordinates) (Hansen et al., 2014). In this study, we focus on the features and demands of the tasks, rather than on the resources or needs of individuals, because we do not ask about the way they carry out their work activities (e.g., concentrated). We do ask them to report on the characteristics of the tasks they are asked to perform (complex and interactive tasks vs. simple and noninteractive). The different configurations of these two dimensions, which can vary on the continuums of task complexity and interaction with others at work, can give rise to different work patterns. The “theoretically pure” forms would include (a) noninteractive, high complexity; (b) noninteractive, low complexity; (c) interactive, high complexity; and (d) interactive, low complexity (Soriano et al., 2015). Empirical evidence highlights the importance of the interaction between task requirements and different types of adequate work environments (Wohlers et al., 2017). Thus, these different work patterns can have specific organizational-related characteristics in terms of environmental requirements, such as adequate office types.

With regard to spatial requirements, the most widely established office typology (Cabello, 2016) was proposed by Neufert (1995), who divides offices into cellular offices, group offices, and open-plan offices. These office types, in turn, can be appropriate for different types of work. First, cellular offices are usually composed of one to two people (individual offices) or up to four to six people (small groups) (Gottschalk, 1994). Both individual and small group offices are appropriate for work

that demands high levels of concentration. Furthermore, according to Neufert (1995), individual offices are suitable for independent or medium-level interactive work, and small group offices are appropriate for employees who require a constant exchange of information. Therefore, a fit would be expected between individual cell offices and work patterns characterized by lower levels of interactivity and higher levels of complexity (see also Figure 1).

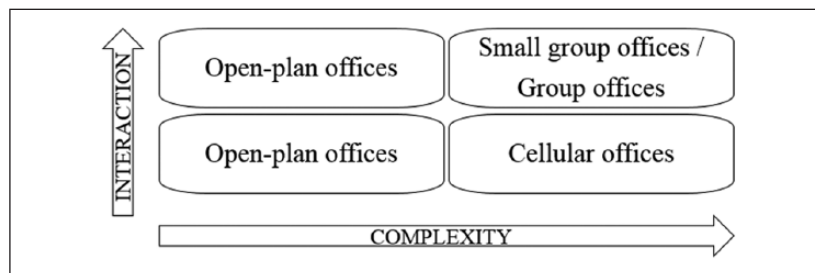


Figure 1. Office type–work patterns fit.

Second, group offices, usually composed of six to 20 work stations (Gottschalk, 1994), are considered appropriate for groups of collaborators who need a constant exchange of information, but not very large teams, to perform cognitively demanding tasks (Neufert, 1995). Therefore, there will be a fit between group offices and the “high interactive, high complexity” pattern. Finally, open-plan offices are usually composed of more than 20 work stations (Gottschalk, 1994), and they are appropriate for big teams that need constant interaction and perform monotonous tasks without much cognitive demand (Neufert, 1995). Open-plan office settings are also suitable for individual routine process work with low levels of interaction (Laing, Duffy, Jaunzens, & Willis, 2004). Therefore, there will be a fit between open-plan offices and both “low interactive, low complexity” and “high interactive, low complexity” patterns. Although a more contemporary office work typology (Danielsson & Bodin, 2008) includes new office types such as flex or combi offices,

both typologies indicate that individual or small group cellular offices, group offices, and open-plan offices are considered the most important office types. We use Neufert's classification because it fits the type of offices we consider in our study better, and it is also the most parsimonious typology.

Taking into account the possible match between office spaces and work patterns, we can identify two groups of office workers: the first group, referred to as "fit," would include workers in an appropriate office type for their work pattern, and the second group, referred to as "misfit," would be composed of employees who work in an inappropriate office type for their work pattern.

Furthermore, the (mis)fit between office environment and work pattern can provide a possible explanation for differences in organizational processes and outcomes. Indeed, the literature has shown that the degree of adequacy of the space (e.g., type of office) for the task to be carried out (e.g., work pattern) can have an impact on work outcomes (Vischer, 2007). Thus, according to the Job Demands-Resources model (A. B. Bakker & Demerouti, 2007), environmental resources (e.g., adequate office type) are physical aspects of the job context that are functional in achieving work goals and reducing the undesirable influence of job demands (e.g., work patterns) (A. B. Bakker & van Woerkom, 2017). This model suggests that optimal work outcomes (e.g., work performance) are the result of a balance between the demands made on employees (e.g., work patterns) and the resources they have at their disposal (e.g., office types) (A. B. Bakker & Demerouti, 2007). Research has previously shown that workers who perceive a higher fit between their type of tasks (external job demands) and their work environment (external resources) also feel more supported by their workspace and benefit more from the office concept than those who perceive a lower fit (Gerdenitsch et al., 2017). For example, employees

who work in quiet work- spaces when they are performing complex tasks will be less distracted than other employees working in noisy workspaces (Seddigh, Berntson, Danielson, & Westerlund, 2014). As previously suggested by other authors (Rego, 2009; Warr, 2007), moderating variables can affect the strength of the relationship between well-being and performance. Hence, the effect of the work pattern–office type (mis)fit can be a possible explanation for the spurious results obtained within the happy-productive worker thesis. In this regard, a large amount of literature finds a positive relationship between well-being and performance. However, having an adequate office type for the task might boost this relationship between well-being and performance. This could be explained by social exchange theory (Blau, 1964), which assumes the reciprocity norm, where benefits received from another party (e.g., environmental resources such as an adequate office type) generate felt obligations to respond in a positive way (e.g., performance). Taking all this into account, we formulate the following hypothesis:

Hypothesis 4 (H4): The relationship between office workers' well-being (positive emotions, activity worthwhileness, and flow) and performance (in-role and extra-role) will be stronger when there is a fit between the workers' work pattern and their office type than when there is a misfit between their work pattern and their office type.

In addition, the majority of the studies on well-being and its consequences have adopted a cross-sectional approach (Skakon, Nielsen, Borg, & Guzman, 2010). Diary designs obtain repeated measurements of participants that make it possible to summarize each person's within-person data in the form of averages (e.g., means) and variability (e.g., variances), and examine between-person averages and variability in these summary measures. Therefore, using multilevel analysis to calculate these estimates is a better approach when research questions become more complex (Bolger,

Davis, & Rafaeli, 2003). Thus, the main contribution of this study is to highlight that the work pattern–office type fit moderates the relationship between well-being and performance. Hence, the present study expands the happy-productive worker thesis by identifying a relevant boundary condition of the relationship upheld by the thesis. Moreover, it enriches this thesis by taking into account important facets of well-being (hedonic and eudaimonic) and performance (in-role and extra-role). Furthermore, the use of a diary study design allows us to pay attention to states, which reflect how an individual feels at certain points in time. Figure 2 graphically represents the model with the hypothesized relationships to be tested in the study.

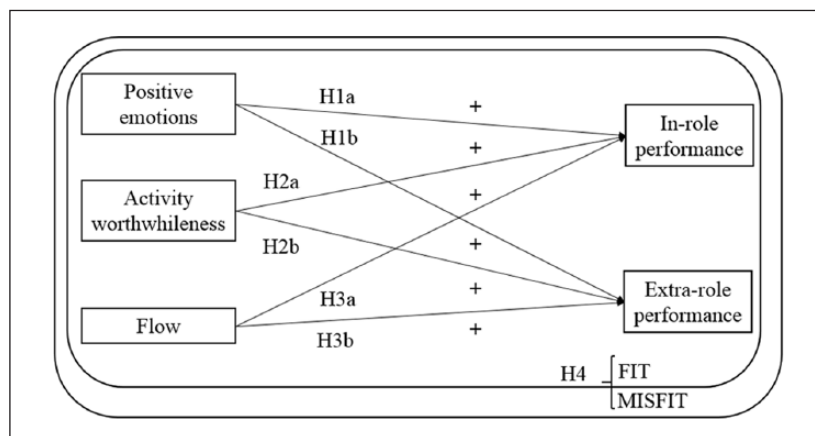


Figure 2. The proposed research model in this study.

Method

Sample and Procedure

In the present study, we collected data using a diary study and a baseline questionnaire completed by 83 office workers from five companies in the Valencian Community (Spain). Sixty-seven percent of the sample were women. The participants ranged in age from 20 to 62 years ($M = 39.67$; $SD = 8.84$). Eighty-five percent of the sample have at least a university degree.

Employees were asked to fill in the diary twice a day, once in the morning and once in the afternoon, on four consecutive days. Because some of the office workers were away from their workspace part of the workday, we failed to collect data at 61 time points. Therefore, we obtained 603 data collection points. We aimed to collect data from each of the employees in their offices at the same time in the morning and in the evening; however, due to the limited availability of some participants in their offices, in some cases, there are differences in the data collection times. Employees' work patterns were measured using baseline questionnaires administered between 1 and 4 days before the diary data collection week. To do so, we asked employees about the type of tasks they usually performed (complexity and interactivity). The participants were informed that their participation in the study was voluntary, and that they could withdraw from the study at any time. In addition, measures were taken to ensure the confidentiality of the data, and the study was approved by the institutional ethics committee.

Measures

The diary questionnaire assessed state measures of positive emotions, activity, worthwhileness, flow, and performance (in-role and extra-role). These measures reveal participants' levels on these characteristics on the specific occasions tested.

Positive emotions were measured with a three-item scale (White & Dolan, 2009 based on the Day Reconstruction Method (DRM) by Kahneman, Krueger, Schkade, Schwarz, and Stone (2004). The person was asked to evaluate the extent to which he or she experiences this type of emotion at work (sample item: "Happy"). The response scale ranged from 1 (*not at all*) to 7 (*very much*). The mean Cronbach's α for the scale at the eight time points was .73.

Activity worthwhileness was measured with a three-item scale (White & Dolan, 2009). The respondents were asked to respond whether they felt the activities they had been carrying out in the past couple of hours were “. . . worthwhile and meaningful” (sample item). The response scale ranged from 1 (*not at all*) to 7 (*very much*). The mean Cronbach’s α for the scale at the eight time points was .79.

Flow was measured with a two-item scale (White & Dolan, 2009). The respondents were asked to evaluate the extent to which they had these types of experiences at work (sample item: engaged). The response scale ranged from 1 (*not at all*) to 7 (*very much*). The mean Spearman–Brown coefficient for the scale at the eight time points was .74.

Work performance was measured with six items assessing office workers’ in-role (sample item: “Now I fulfill all the requirements for my job”) and extra-role performance (sample item: “I voluntarily did more than was required of me”) (R. D. Williams, 1991; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009a). Respondents were asked to evaluate to what extent they agreed with different statements about their performance in the past couple of hours, using a response scale ranging from 1 (*not at all*) to 7 (*very much*). The mean Cronbach’s α for the in-role and extra-role scales at the eight time points were .88 and .74, respectively.

The baseline questionnaire was used to assess sociodemographic variables (age, sex, educational level, job level, marital status, and salary) and work patterns. *Office type–work pattern fit* (and misfit) was measured using combined information about work patterns and office type. To obtain it, we first measured work patterns using a two-dimensional scale. The first subdimension was composed of one item referring to the frequency of performing complex tasks, and the second subdimension was composed of one item referring to the frequency of interacting with other people

at work. The response scale ranged from 1 (*never*) to 4 (*very often*). Although some researchers question the use of single-item psychological measures (Hoeppner, Kelly, Urbanoski, & Slaymaker, 2011), these scales can be valuable for psychometrical, ethical, and practical reasons. They reduce the likelihood of common method variance (Gardner, Cummings, Dunham, & Pierce, 1998), and there is less participant burden because they are not as time-consuming as longer scales (Gardner et al., 1998; Hoeppner et al., 2011). Consequently, single-item scales can be especially appropriate for diary studies and to evaluate work demands when repeated measurements are necessary (Metzenthin et al., 2009). In addition, empirical evidence shows that single-item scales do not underperform multiple-item scales (Gardner et al., 1998). Second, we determined the office type of each employee by considering the number of co-workers he or she has in the office (see Neufert, 1995), because the size of the group sharing a workspace seems to play a decisive role in terms of satisfaction (Danielsson, 2010). There was a “fit” when the work pattern corresponded with its most suitable office type (see Table 2). There was a “misfit” in every other case.

Sociodemographic variables were measured as follows. First, participants were asked to indicate their age in years and their sex, with two options (0 for female; 1 for male). Regarding educational level, participants had to choose between high school, professional training, university degree (graduated), university degree (MA, Msc), or PhD. With regard to job level, participants had to choose from the following options: manager, highly qualified professional, technician, administrative, junior employee, or other job level. For marital status, the options were single, married/living with partner, widowed, or separated/divorced. Finally, participants had to indicate their salary using the following range options: less than 600€per

month; between 600€ and 1,000€, between 1,000€ and 1,499€, between 1,500€ and 1,999€, between 2,000€ and 3,000€, or more than 3,000€

Data Analysis

In the first part of the analyses, the sample was divided into groups using two-step cluster analysis in SPSS v.22, and considering two variables (i.e., work patterns): the degree of task complexity and the degree of interaction with other people at work. The cluster analysis method is derived from a probabilistic model in which the distance between two clusters is equivalent to the decrease in log-likelihood function as a result of merging (Okazaki, 2006). Its algorithm is based on a two-step approach: first, it uses a similar procedure to the k-means algorithm; second, considering these results, a modified hierarchical agglomerative clustering procedure is carried out that combines the objects sequentially to form homogeneous clusters. This method offers fit information such as the Bayesian information criterion (BIC), as well as information about the importance of each variable in the construction of a specific cluster (Mooi & Sarstedt, 2010), which is an additional attractive feature of the two-step cluster method compared with traditional clustering methods. Because all the variables used in this study were independent and had a normal distribution (skewness $< \pm 2$, and kurtosis $< \pm 7$, Ryu, 2011), we used the log-likelihood approach (SPSS, 2001).

In the second part of the analyses, we carried out multilevel, multigroup linear regressions to determine the relationships between the variables of interest in different groups. To this end, we use a diary design with a multi-level approach. Our repeated data can be viewed as multilevel data because repeated measurements at Level 1 ($n = 603$ study occasions) are nested within persons at Level 2 ($n = 83$ participants). To examine the relationships between variables at the individual level, we focused on

assessing the relationships at the “person level” (i.e., Level 2 or between-level), which takes into account between-person variations. One advantage of diary-based data is that there is a reduction in measurement error, and with it, an increase in validity and reliability (Bolger et al., 2003). Furthermore, a diary study allows us to focus on states, which change across time and reflect how an individual feels at certain points in time (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009b). To carry out multilevel, multigroup linear regressions, we used MPlus software (Muthén & Muthén, 2015).

Table 1
Type of office-work pattern fit and (Misfit)

Office-Work Pattern FIT	Office-Work Pattern MISFIT
Cellular office (1-2 people) - Middle interactive, high complexity	Any configuration not mentioned in the FIT category
Cellular office-small groups (up to 4-6 people) - Interactive, high complexity	
Group office (6-20 people) - Interactive, high complexity	
Open offices (>20 people) - Interactive, low complexity	
Open offices (>20 people) - Non-interactive, low complexity	

Results

Preliminary Results: Classification of Fit and Misfit Groups

The auto-clustering algorithm of the two-step cluster analyses indicated that a four-cluster solution was the best model because it minimized the BIC value (101.860) and its change between adjacent numbers of cluster selection criteria (-3.222). All the predictors (task complexity and interaction) explained at least 78% of the cluster analysis results, and the average silhouette was .60. Four clusters emerged, differentiating four groups of employees depending on their type of tasks: (a) employees who usually work alone and perform simple tasks (i.e., “noninteractive, low complexity”; $n = 7$); (b) employees who sometimes interact with other people at

work and perform complex tasks (i.e., “middle interactive, high complexity”; $n = 32$); (c) employees who frequently interact with others and perform simple tasks (i.e., “high interactive, low complexity”; $n = 23$); and (d) employees who frequently interact with other people at work and perform complex tasks (i.e., “high interactive, high complexity”; $n = 21$). Based on the results of this cluster analysis and the recommended type of space for the type of work carried out (Gottschalk, 1994; Laing et al., 2004; Neufert, 1995), we were able to identify two groups in our sample: (a) the “fit” group included workers in an adequate office type for their work pattern (see Table 1), and (b) the “misfit” group was composed of employees who worked in an inadequate office type for their work pattern.

Test of Hypotheses: The Moderating Role of Work Pattern and Office Type Fit and Misfit in the Relationship Between Well-Being and Performance

Descriptive analyses are shown in Table 2. The t tests and chi-square significance tests were performed for the differences in the demographic variables between the groups (“fit” and “misfit”). No differences were found between groups.

Table 3 presents the means, standard deviations, and significance test for the differences between the “fit” and “misfit” groups in the levels of the variables of interest in our sample. To test the predictive validity of the hypothesized factors at the “person level” of the nested data structure, linear regressions were used to predict office workers’ in-role and extra-role performance. Figure 3 presents the results of the multilevel, multigroup linear regressions.

Table 2
Fit-misfit: sample characteristics

	FIT (<i>n</i> = 31) <i>n</i> (%)	MISFIT (<i>n</i> = 52) <i>n</i> (%)	<i>Chi square</i>	<i>p</i>
<i>Age</i> ¹	38.68 (9.31)	40.27 (8.60)	-0.791	.43
<i>Sex</i> ²				
Female	22 (26.5%)	35 (42.2%)	0.121	.73
Male	9 (10.8%)	17 (20.5%)		
<i>Educational level</i> ²				
High school	0 (0.0%)	1 (1.2%)		
Professional training	4 (4.8%)	7 (8.4%)		
University degree (Graduated)	8 (9.6%)	14 (16.9%)	1.830	.77
University degree (MA, Msc)	15 (18.1%)	27 (32.5%)		
PhD	4 (4.8%)	3 (3.6%)		
<i>Job level</i> ²				
Manager	2 (2.4%)	2 (2.4%)		
Highly-qualified professional	10 (12.0%)	17 (20.5%)		
Technician	8 (9.6%)	13 (15.7%)	0.739	.95
Administrative	9 (10.8%)	18 (21.7%)		
Junior employees	0 (0.0%)	0 (0.0%)		
Other	2 (2.4%)	2 (2.4%)		
<i>Marital status</i> ²				
Single	8 (9.6%)	14 (16.9%)		
Married/living with partner	23 (27.7%)	37 (44.6%)	0.630	.73
Widowed	0 (0.0%)	0 (0.0%)		
Separated/divorced	0 (0.0%)	1 (1.2%)		
<i>Salary</i> ²				
Less than 600€	2 (2.4%)	4 (4.8%)		
600€- 1000€	4 (4.8%)	0 (0.0%)		
1000€- 1499€	13 (15.7%)	21 (25.3%)	10.434	.06
1500€- 1999€	8 (9.6%)	15 (18.1%)		
2000€- 3000€	3 (3.6%)	12 (14.5%)		
More than 3000€	1 (1.2%)	0 (0.0%)		

Note. ¹ Means, standard deviations, and t test. ² The number in parentheses represents the percentage of the total.

Table 3
 Descriptive statistics of the variables of interest in the current study for the eight different time points in which participants filled in the diary

	FIT		MISFIT		t	p
	M	SD	M	SD		
Positive emotions						
Time 1	4.73	1.13	4.61	1.15	0.42	.68
Time 2	4.63	1.25	4.76	0.98	-0.49	.62
Time 3	4.59	1.21	4.79	1.13	-0.72	.47
Time 4	4.64	1.23	4.60	1.26	0.15	.88
Time 5	4.86	1.25	4.65	1.26	0.72	.47
Time 6	4.84	1.22	4.67	1.30	0.54	.59
Time 7	4.73	1.16	4.90	1.31	-0.57	.57
Time 8	4.80	1.01	4.67	1.42	0.40	.69
Mean	4.72	1.17	4.70	1.22	0.18	.85
Activity worthwhileness						
Time 1	5.08	1.26	5.00	1.25	0.28	.78
Time 2	5.27	1.01	5.17	1.11	0.38	.71
Time 3	5.26	1.04	4.90	1.39	1.22	.23
Time 4	5.23	1.23	5.08	1.31	0.50	.62
Time 5	5.42	0.97	5.18	1.28	0.86	.39
Time 6	5.48	1.17	5.18	1.45	0.88	.38
Time 7	5.30	1.13	5.32	1.24	-0.08	.94
Time 8	5.35	1.23	5.17	1.39	0.54	.59
Mean	5.29	1.12	5.12	1.30	1.64	.10
Flow						
Time 1	5.63	1.12	5.69	0.98	-0.25	.80
Time 2	5.63	0.88	5.48	1.00	0.67	.51
Time 3	5.47	1.13	5.57	1.20	-0.38	.70
Time 4	5.76	0.81	5.29	1.15	1.94	.06
Time 5	5.70	0.98	5.61	1.10	0.36	.72
Time 6	5.60	1.10	5.38	1.13	0.80	.43
Time 7	5.72	1.23	5.71	1.05	0.04	.97
Time 8	5.40	1.19	5.29	1.30	0.37	.72
Mean	5.62	1.05	5.50	1.12	1.21	.23
In-role performance						
Time 1	5.81	0.99	5.95	0.82	-0.69	.49
Time 2	5.90	0.76	5.81	0.83	0.45	.66
Time 3	5.94	0.88	5.90	1.10	0.19	.85
Time 4	5.94	0.81	5.91	1.09	0.13	.90
Time 5	5.86	0.77	6.05	0.87	-0.95	.35
Time 6	5.80	0.94	5.82	1.14	-0.07	.95
Time 7	6.02	0.86	6.06	0.99	-0.14	.89
Time 8	5.99	0.81	5.95	1.03	0.17	.86
Mean	5.91	0.85	5.93	0.98	-0.29	.77

Extra-role performance

Time 1	4.14	1.60	4.28	1.49	-0.38	.70
Time 2	4.18	1.52	4.16	1.48	0.06	.95
Time 3	4.08	1.35	4.02	1.59	0.17	.87
Time 4	4.39	1.31	4.26	1.67	0.37	.72
Time 5	4.46	1.23	4.05	1.60	1.15	.25
Time 6	4.47	1.45	4.24	1.57	0.59	.56
Time 7	3.99	1.42	4.21	1.44	-0.63	.53
Time 8	3.84	1.58	4.08	1.47	-0.65	.52
Mean	4.19	1.43	4.16	1.53	0.26	.80

Note. All scales ranges from 1 to 7.

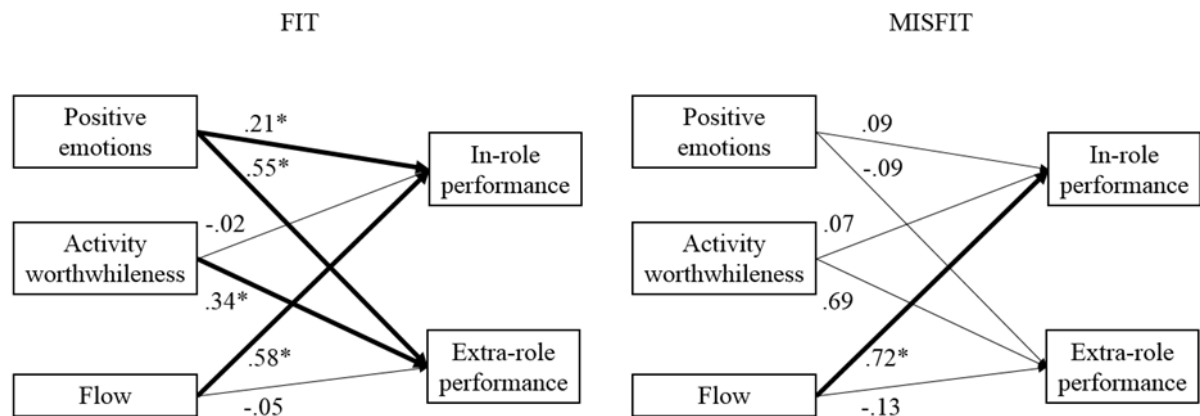


Figure 3. Multi-level, Multi-group Linear Regressions
* $p < .05$

Figure 3. Multilevel, multigroup linear regressions.
* $p < .05$.

In the “fit” group, supporting H3a and H1a, the results showed a significant positive association between flow and positive emotions and in-role performance (Estimate [*Est*]. = .58, $p < .01$, and *Est.* = .21, $p = .01$, respectively). Furthermore, the results support H1b and H2b because a significant positive association between positive emotions and activity worthwhileness and extra- role performance was found (*Est.* = .55, $p = .02$, and *Est.* = .34, $p = .04$, respectively). Finally, regarding the effect of activity worthwhileness on in- role performance, and the effect of flow on extra- role performance, the results do not support H2a and H3b ($p > .05$).

In addition, the results provide support for H4 because there was a significant effect of the fit–misfit between work patterns and office type on the relationship

between well-being and performance. Moreover, for the “misfit” group, the only significant result was the positive relationship between flow and in-role performance ($Est. = .72, p < .01$).

Discussion

The aim of the present study was to analyze the effect of fit (and misfit) between an employee’s work pattern and his or her office type on the relationship between employee well-being and performance. The results show differences between the “fit” and “misfit” groups, indicating that when there is a misfit between demands (i.e., work patterns) and resources (i.e., office type), well-being hardly improves employees’ performance.

Specifically, in the “misfit” group, the results show only one significant positive relationship, between flow and in-role performance. By contrast, for the “fit” group, the results indicate a significant positive association between flow and positive emotions and in-role performance, as well as a significant positive association between positive emotions and activity worthwhileness and extra-role performance.

These results yield partial support for H1a and H1b, which stated that “Office workers’ positive emotions will be positively related to their in-role performance (H1a) and extra-role performance (H1b).” These results are consistent with those from previous studies indicating that positive emotions are positively related to workers’ performance (Bindl et al., 2012; Cropanzano & Wright, 1999; Seo & Ilies, 2009; Van Woerkom & Meyers, 2015). Furthermore, the results yielded partial support for H2b, showing a significant positive association between activity worthwhileness and extra- role performance (Niessen et al., 2012). In addition, the results provided support for H3a because they show a significant positive association between flow and in-role performance (Engeser & Rheinberg, 2008; Nakamura &

Csikszentmihalyi, 2005) in both the “fit” and “misfit” groups. However, in contrast to the existing studies, the results do not support the relationship between flow and extra-role performance and activity worthwhileness and in-role performance (Hakanen et al., 2008; Niessen et al., 2012; Saradha & Patrick, 2011); therefore, we have not found support for H2a or H3b. Finally, the results supported H4, as there was a significant effect of the fit–misfit between work patterns and office type on the relationship between well-being and performance (A. B. Bakker & Demerouti, 2007; Gerdenitsch et al., 2017; Vischer, 2007).

The results agree with Vischer (2007), who suggested that the degree of adequacy of the space (e.g., type of office) for the task to be carried out (e.g., work pattern) can have an impact on work outcomes. In the “fit” group, both the hedonic and eudaimonic components of well-being influence in-role and extra-role performance: on one hand, activity worthwhileness is positively related to extra-role performance, and on the other hand, flow is positively related to in-role performance. These results coincide with authors who posit that some moderating factors can have an impact on the relationship between well-being and performance (Baron & Tang, 2011; N. A. Bowling, 2010; Gyekye & Haybatollahi, 2015; Ibrahim et al., 2004). Therefore, the results are in consonance with the job demands–resources model (A. B. Bakker & Demerouti, 2007) because they show that compatibility between individuals (i.e., work patterns) and organizations (i.e., office type) affects employee behavior (e.g., performance). Moreover, our results show that the fit between office type and work patterns has to play a significant role in office design because differences between office types in terms of working conditions and work-related outcomes can be explained by the enabled fit (Gerdenitsch et al., 2017; Wohlers et al., 2017).

The only significant association between well-being and performance in both the “fit” and “misfit” groups was the positive relationship between flow and in-role performance, which could be explained by the fact that flow is only experienced when challenges and skills are both high (Csikszentmihalyi & Csikszentmihalyi, 1988). Thus, flow itself implies being in a different type of fit situation, such as a match between challenges and skills (Csikszentmihalyi & Lefevre, 1989). These results suggest that, in general, different kinds of fit might be necessary to enable the well-being–performance relationship. This issue should be studied more in depth in future research.

Some limitations warrant a cautious interpretation of the results of this study. On one hand, some theoretical limitations should be mentioned. First, the objective classification of fit and misfit does not account for individual differences in preferences about the office environment, and this is an important issue to be considered. Therefore, future studies could analyze the relationship between the office type–work pattern fit and office workers’ satisfaction. However, focusing on the fit between objective task demands (rather than on the preferences of the employees) and the offices suitable to perform them may produce useful empirical evidence for guiding the design of offices. A second limitation of the present study is that it only considered cellular offices (individual or small groups), group offices, and open offices. There are more recent typologies that include more contemporary workspaces such as flexible or “combi” offices. These typologies should be considered in future research; however, we have relied on the basic typology because our empirical research was carried out in settings where only cellular, group, and open offices were included. Third, we consider the type of office in itself and its fit to the type of task requested. Thus, we did not take into account whether these offices are used

appropriately by office workers. Future studies might have to address this important issue to better understand the effect of type of office when considering work patterns, as well as the appropriate use of these offices.

This study also has some methodological limitations. First, in the present study, we used self-report measures of state performance. Even though employees' leniency or self-deception can impact their self-ratings, this bias is especially pronounced in the case of general or trait judgments of performance (Heidemeier & Moser, 2009), which is not the case here. Furthermore, research shows strong congruence between company records and workers' self-reports (Kim, Cyphert, & Price, 1995). Future studies could compare these self-reports with other more objective measures. Second, the present study uses single-item measures to assess work patterns (i.e., task complexity and interaction with others). Although their use has raised some concerns (Hoepfner et al., 2011), single-item measures can be advantageous from psychometric, ethical, and practical points of view (Gardner et al., 1998; Hoepfner et al., 2011). Therefore, they can be especially appropriate for diary designs and for work demand evaluations using repeated measures (Metzenthin et al., 2009). In addition, single-item scales have been shown to function as well as multiple-item scales (Gardner et al., 1998).

The main contribution of this study is that it highlights the important role of the work pattern–office type fit, which suggests that the happy-productive worker thesis may work fully when workers' offices are appropriate for their work patterns. Furthermore, the present study uses a diary study design that allows us to pay attention to experiences and states, which vary over time and reflect how an individual feels at certain points in time, rather than viewing well-being as an overall judgment related to long periods, disregarding its variability (Xanthopoulou et al.,

2009b). Moreover, the present study enriches the happy-productive worker model by taking into account both the hedonic and eudaimonic components of well-being (e.g., Dolan, 2014; Keyes et al., 2002; Linley et al., 2009).

Our findings have important theoretical implications. First, we consider the role of the work pattern–office type fit in the association between employees' well-being and performance, which, until now, had hardly been examined. Second, we present a comprehensive approach to understanding well-being (i.e., as hedonic and eudaimonic well-being) and performance (i.e., as in-role and extra-role performance), which had scarcely been considered before. Moreover, we measure eudaimonic well-being by taking into account its different components (i.e., activity worthwhileness and flow), which has been suggested in the current literature (Sonnentag, 2015). Finally, we understand that positive emotions, activity worthwhileness, flow, and in- role and extra-role performance vary over time, and our study design allows us to consider their variability across time.

This study has important practical implications. Its results are relevant for improving the design of office environments, taking into account the work patterns of each employee. This information can guide the proper design of a workplace that allows well-being to foster performance. The results of the present study can provide relevant information for supervisors and managers who need to develop human resources practices for different groups of employees depending on their work patterns and available office spaces. Finally, they can be valuable for office redesign when considering the possible relationship between employee well-being and performance.

Conclusion

Office workers spend long hours in their workspaces, and the present study finds that the adequacy of their office space for the work activities they carry out on a daily basis can have an important impact on their work outcomes. Specifically, this study highlights the important role of the fit between the work pattern and the office type, and it suggests that the happy-productive worker thesis may work fully when workers' offices are adequate for their work patterns. This approach to the study of the fit between work patterns and office characteristics is novel and shows that offering modern, cutting-edge office spaces is not enough. To enable the well-being-performance relationship, these office spaces should be designed taking into account the office workers' needs in terms of their work patterns.

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ESTUDIO 5
EMPLOYEES' WORK PATTERNS-OFFICE TYPE
FIT AND THE DYNAMIC RELATIONSHIP
BETWEEN FLOW AND PERFORMANCE

(Submitted)

Employees' Work Patterns-Office Type Fit and the dynamic relationship between Flow and Performance

Abstract

Organizations must improve their employees' performance to compete effectively. Evidence shows that flow experiences enhance performance. However, a dynamic approach to this phenomenon is needed. Furthermore, different work activities (work patterns) can have specific environmental requirements (office types). This research aims to analyze the dynamic relationship between office workers' flow and performance, considering the role of work pattern-office type fit. Eighty-three workers participated in this diary study. Results of the latent growth model showed a positive association between: 1) the initial levels of flow and in-role and extra-role performance; and 2) the changes in flow and in in-role and extra-role performance. Furthermore, Work Pattern-Office Type FIT directly influenced workers' flow. Also, flow mediated between Work Pattern-Office Type FIT and in-role performance. Our results show that workspaces that fit employees' work patterns are more likely to induce flow, which, in turn, will have beneficial consequences for the organization.

Keywords: (mis)fit; Work pattern; Office type; Flow, Performance, Spanish Office Workers, Social Psychology

Introduction

Today's organizations recognize that employees' performance is essential for companies' survival (Campbell & Wiernik, 2015). Organizations must constantly improve their performance in order to compete effectively (Chang & Huang, 2005). In this regard, *flow* is a main construct in the positive psychology movement that has begun to receive considerable research attention (Seligman & Csikszentmihalyi, 2000),

and it has been related to workers' performance (Demerouti, 2006; Jackson, Thomas, Marsh, & Smethurst, 2001). However, although some literature focuses on the flow experience in the work context (Bakker, 2005), research on this topic is still scarce (Demerouti, 2006; Fullagar & Kelloway, 2009). Furthermore, even though some work-related characteristics, such as motivating job characteristics, have been found to be strongly related to flow, thus increasing job performance, knowledge about this phenomenon and its predictors and outcomes in the work setting is still limited (Debus, Sonnentag, Deutsch, & Nussbeck, 2014; Demerouti, 2006; Jackson, Thomas, Marsh, & Smethurst, 2001).

There is evidence supporting the relationship between flow and performance at work. However, the majority of these studies have adopted a cross-sectional approach (Skakon, Nielsen, Borg, & Guzman, 2010), and a dynamic research approach is needed to capture the changing nature of their *states* (Fullagar & Kelloway, 2009). Therefore, the application of diary designs can provide better insight into micro processes (Demerouti, Bakker, Sonnentag, & Fullagar, 2012), such as the dynamic relationship between flow and performance. The present study aims to address these gaps by implementing Latent Growth Modeling (LGM) of diary study data to analyze the dynamic relationship between flow and performance.

Furthermore, some organizational and job-related characteristics may influence flow (Bakker, 2005; Demerouti, 2006; Salanova, Bakker, & Llorens, 2006) or performance (Baron & Tang, 2011; Bowling, 2010; Gyekye & Haybatollahi, 2015; Ibrahim, Al Sejini, & Al Qassimi, 2004). In this regard, different activities carried out at work (i.e., work patterns) can have specific organizational-related characteristics, in terms of environmental requirements (i.e., adequate office types) (Neufert, 1995). If these requirements are not present, and workers perceive their offices to be unsuitable

for their work tasks, they may report worse wellbeing and performance (Danielsson, 2010; De Clercq, Fontaine, & Anseel, 2008; Vischer, 2007).

Therefore, the aim of the present research is to study the dynamic relationship between office workers' flow and their in-role and extra-role performance, considering work pattern-office type fit as a predictor of the initial level of these three variables. Our study design allows us to analyze changes and dynamic relationships across time. Additionally, we contribute to the existing knowledge about task requirements and their recommended office types and, thus, how office environments can be improved based on work patterns.

Definition of Flow at Work

Flow has been defined as “a particular kind of experience that is so engrossing and enjoyable [that it is] worth doing for its own sake even though it may have no consequence outside itself” (Csikszentmihalyi, 1999, p.824). It is a state or holistic sensation where people are so intensely involved in an activity that nothing else seems to matter (Csikszentmihalyi, 1990). Its state changes across time and situations, highlighting the dynamic nature of this phenomenon and the need for an adequate approach to capture it (Fullagar & Kelloway, 2009).

In the organizational context, flow has been defined as a short-term peak experience characterized by absorption, work enjoyment, and intrinsic work motivation (Bakker, 2005). Consistent with this description, flow is a multi-dimensional concept that includes characteristics such as action awareness merging, lack of self-consciousness, complete concentration, a strong feeling of control, or time distortion (Jackson & Eklund, 2002). In sum, this psychological state has been characterized by an extremely high degree of involvement with, focus on, and concentration on the task at

hand, where one's attention and energy are exquisitely focused on the activity (Fullagar & Kelloway, 2009).

Furthermore, flow may be understood from different perspectives. First, in terms of affectivity, flow could be regarded as a momentary form of eudaimonic wellbeing (Fullagar & Kelloway, 2009), emphasizing optimal functioning and personal expressiveness (Waterman, 1993). Second, with regard to cognitive aspects, flow implies that people concentrate fully and are immersed in what they do (Csikszentmihalyi, 1990). And third, from the motivational point of view, feeling flow entails intrinsic motivation that induces people to carry out further activities (Engeser & Rheinberg, 2008). Additionally, flow is a situational state of mind that changes across time and situations (Fullagar & Kelloway, 2009).

Definition of Performance at Work

Performance is defined as “a function of a person's behavior and the degree to which this behavior helps the organization to obtain its goals” (Ford, Cerasoli, Higgins, & Decesare, 2011, p.187, see also Motowidlo, Borman, & Schmit, 1997). However, it is important to distinguish between the two major types of performance: in-role performance, understood as the official requirements of the job that directly serve the organizational goals (Motowidlo & Van Scotter, 1994) (i.e., carrying out formal tasks; Williams & Anderson, 1991), and extra-role performance, defined as employees' behaviors that are believed to promote the optimal functioning of the organization without necessarily influencing an employee's productivity (MacKenzie, Podsakoff, & Fetter, 1991) (i.e., helping others; Moorman, Niehoff, & Organ, 1993). Literature suggests that these types of performance should be considered separately because they work differently, based on the following assumptions (Motowidlo & Van Scotter, 1994): 1) Activities that are relevant to in-role performance are more prescribed and

vary between jobs, whereas extra-role performance activities are more discretionary and relatively similar across jobs; and 2) in-role performance is mainly related to ability, whereas extra-role performance is more related to personality and motivation. Both in-role and extra-role performance are dynamic phenomena that may change across time and situations as employees perform their tasks at work throughout the work day and week (Roe, 2014).

Flow and Performance at Work

Since the beginning of the flow research, a close relationship between flow experiences and performance has been expected (Landhäuber & Keller, 2012). Theoretically, flow, as an optimal mental state, would be expected to be associated with optimal performance (Jackson et al., 2001). This relationship may have different explanations. First, from an *affective* point of view, and considering the happy-productive worker thesis (Cropanzano & Wright, 1999; Judge, Thoresen, Bono, & Patton, 2001), flow as a form of eudaimonic wellbeing (Fullagar & Kelloway, 2009) could promote job performance because workers with high levels of wellbeing usually perform better than those with low levels. Second, from a *cognitive* point of view, the flow experience is characterized by high levels of concentration and a sense of control, which are facilitators of performance (Eklund, 1996). As such, flow is a highly functional state and should result in better performance by itself (Landhäuber & Keller, 2012). Furthermore, appropriate activation levels (Jackson et al., 2001), deep concentration, and focused attention (Landhäuber & Keller, 2012) are important attributes of the flow experience that may transfer to tasks and situations following a flow experience, thus facilitating performance. Third, from a *motivational* point of view, flow could be seen as a motivating force because workers who experience high

levels of flow are more motivated to achieve more activities, and in order to feel flow again, they will perform more challenging tasks (Engeser & Rheinberg, 2008).

Along these lines, some empirical evidence supports this relationship between flow and various indicators of in-role (Demerouti, 2006; Kopperud & Straume, 2009) or extra-role performance (Demerouti, 2006). However, the majority of the studies on wellbeing and its consequences have adopted a cross-sectional approach (Skakon et al., 2010), only investigating its general tendencies. Flow is predominantly a situational state of mind rather than a trait-like characteristic. Thus, it is a dynamic phenomenon that changes across time and situations, and a dynamic research approach is needed to capture the changing nature of its *states* (Fullagar & Kelloway, 2009). Similarly, employees perform their tasks at work throughout the work day and week, and the trajectories of their performance also reflect its dynamic nature (Roe, 2014).

Furthermore, research has shown that variability in a construct at a given time can be quite different from the variability associated with a construct over time. Therefore, cross-sectional research will often provide little insight into how a variable will change over time, and it may even lead to inaccurate conclusions (Maxwell & Cole, 2007). Hence, it is necessary to articulate the role of time in describing the intra-unit change process (Ployhart & Vandenberg, 2010) through the use of latent growth modeling (LGM). The present study aims to address these gaps by implementing Latent Growth Modeling (LGM) of diary study data to analyze the dynamic relationship between flow and performance. LGM differentiates between the initial level and the change by using repeated measures. On the one hand, the initial level or intercept represents the starting point of the regression equation. The intercept factor presents information in the sample about the mean and variance of the collection of intercepts that characterize each individual's growth curve. On the other hand, the change variable

refers to the slope of the regression equation and represents the slope of an individual's trajectory (Duncan, Duncan, Strycker, Li, & Alpert, 2006). Given the cumulative evidence (Demerouti, 2006; Jackson et al., 2001; Kopperud & Straume, 2009; Landhäuber & Keller, 2012), the initial level of flow would be expected to have a positive association with the initial performance status. Furthermore, both flow (Fullagar & Kelloway, 2009) and performance (Roe, 2014) are state variables that change over time and across situations. Therefore, due to the affective (Cropanzano & Wright, 1999; Judge et al., 2001), cognitive (Eklund, 1996)(Landhäuber & Keller, 2012), and motivational factors that connect flow and performance (Engeser & Rheinberg, 2008) and the existence of empirical evidence (Demerouti, 2006; Kopperud & Straume, 2009), the change in flow would be expected to have a positive association with the change in performance. Based on the theoretical arguments and the lack of empirical evidence about the dynamic relationship between flow and performance, the following hypotheses were formulated:

Hypothesis 1a: The initial level of flow is positively related to the initial level of in-role performance.

Hypothesis 1b: The initial level of flow is positively related to the initial level of extra-role performance.

Hypothesis 2a: The change in flow is positively related to the change in in-role performance.

Hypothesis 2b: The change in flow is positively related to the change in extra-role performance.

The Role of the Work Pattern and Office Type Fit (and Misfit)

Research has shown that some organizational and job-related characteristics can affect organizational outcomes such as flow (Bakker, 2005; Demerouti, 2006; Salanova

et al., 2006) or performance (Baron & Tang, 2011; Bowling, 2010; Gyekye & Haybatollahi, 2015; Ibrahim et al., 2004).

There is a wide variety of office types where employees share workspaces (e.g., open plan offices vs. cellular or individual offices) (Danielsson & Bodin, 2008). Studies have shown that these office types can influence various work outcomes (Danielsson, 2010; Jahncke, 2012). This influence may depend on the type of activity performed in each kind of office because each office type is recommended for a specific type of task (Neufert, 1995). In this regard, work in offices can include different activities (Morgeson & Humphrey, 2006), and these activities can vary on the continuums of important variables, such as task complexity or interactions with others at work, leading to different work patterns. We understand work patterns to be configurations or profiles of work functions and tasks to be fulfilled and performed through individual and/or collective behaviors (Soriano, Kozusznik, & Peiró, 2015). Their “theoretically pure” forms would include: 1) Non-interactive, high complexity, 2) Non-interactive, low complexity, 3) Interactive, high complexity, and 4) Interactive, low complexity (Soriano et al., 2015). These different work patterns can have specific organizational-related characteristics in terms of environmental requirements such as adequate office types. In this regard, when referring to spatial requirements, Neufert (1995) divides offices into: cellular offices, group offices, and open-plan offices, which, in turn, can be appropriate for different types of work (see Figure 1).

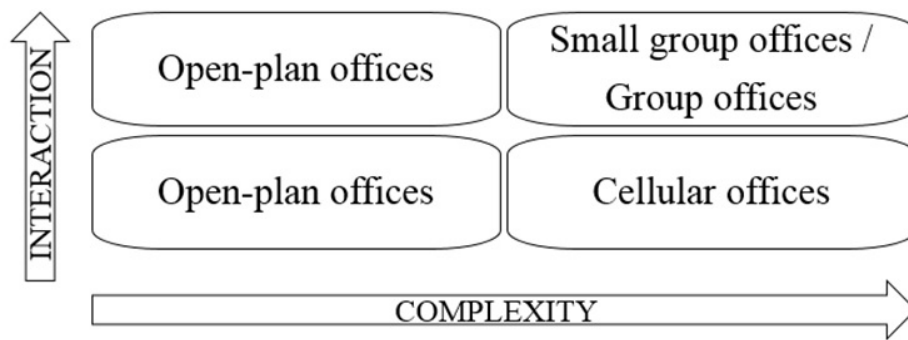


Figure 1. Office type – Work Patterns Fit

Taking into account the possible office type-work patterns match, we can identify two groups: employees who work in an adequate office type for their work pattern (fit group, e.g., workers who usually perform individual and highly complex tasks and work in a cellular office), and employees who work in an inadequate office type for their work pattern (misfit group, e.g., workers who usually perform individual and highly complex tasks and work in an open-plan office). Furthermore, the (mis)fit between the office environment and the work pattern may explain differences in organizational processes or work outcomes. In fact, research has shown that the degree of adequacy of the workspace (e.g., type of office) for the employees' activities, understood as tasks to be performed (e.g., work pattern), can influence work outcomes (Vischer, 2007).

Consistent with these ideas, the person-organization fit model (Chatman, 1989) suggests that compatibility between workers and organizations is an important element that can enhance our understanding of employee behavior (e.g., performance; De Clercq, Fontaine, & Anseel, 2008). Moreover, this model highlights that a good fit between the worker and his/her workspace is present when they both share similar basic features or one provides something that is needed by the other (Boon, Den Hartog, Boselie, & Paauwe, 2011). Therefore, a job-person misfit is often understood as an

organizational weakness that negatively influences workers' outcomes because a lack of work requirements, as in work design problems, may lead to worse wellbeing- and performance-related processes (Chen, Wu, & Wei, 2012). Thus, empirical evidence supports a positive relationship between job-person fit and in-role (Gregory, Albritton, & Osmonbekov, 2010) and extra-role performance (Goodman & Svyantek, 1999; Gregory et al., 2010).

Additionally, state variables such as performance result from the interaction between personal dispositions and the environment (Fullagar & Kelloway, 2009). In this regard, workers who perceive their offices to be unsuitable for their work tasks tend to report worse job outcomes in terms of their wellbeing and performance processes (Danielsson, 2010; De Clercq et al., 2008; Vischer, 2007). This relationship could be explained by the fact that an adequate office may fulfill specific requirements such as privacy, general background interference, personal control over the workstation, or opportunities for cooperation or group identity. Thus, working in an office that matches employees' requirements may be seen as a tool to have more motivated employees (Danielsson, 2010). Taking these ideas into account, we formulate the following hypotheses:

Hypothesis 3a: Office type-work pattern fit is positively associated with the in-role performance level.

Hypothesis 3b: Office type-work pattern fit is positively associated with the extra-role performance level.

Furthermore, research has highlighted that the flow experience is related to different job characteristics (Demerouti, 2006), such as job (Bakker, 2005) or organizational resources (Salanova et al., 2006). In fact, many factors affect flow, including environmental factors, and so it is important to explore the conditions that are

positively related to the ability to achieve flow (Jackson et al., 2001). There is strong evidence that the flow experience is most likely to be achieved when people perceive a balance between the challenge involved in a situation and their own skills in dealing with this challenge (e.g., Bakker, 2005; Csikszentmihalyi, 1990; Ellis, Voelkl, & Morris, 1994; Fullagar & Kelloway, 2009). Two of the main conditions that foster flow at work are the balance between challenges and skills and the environmental resources of the work context (Bakker, Oerlemans, Demerouti, Slot, & Ali, 2011). In this regard, excessively high environmental challenges (e.g., work pattern- office type misfit) may become frustrating (Csikszentmihalyi, 1997; Demerouti, 2006) and make it more difficult to attain a certain level of flow-related psychological skills. Based on these ideas, activation theory (Scott, 1966) proposes that when the activation is too high, workers' performance decreases (Lan, Wargocki, & Lian, 2011). Thus, we understand that, when an employee is working in a highly demanding environment, the optimal activation level will be exceeded, which, in turn, will negatively affect flow-related psychological skills such as the ability to control one's attention or involvement (Csikszentmihalyi, 1990). In addition, as mentioned above, flow is a state variable that is related to working conditions (Fullagar & Kelloway, 2009) and, in turn, may influence job performance (Bakker et al., 2011; Demerouti, 2006). Therefore, we hypothesize the following:

Hypothesis 4: Office type-work pattern fit is positively associated with the level of flow.

Hypothesis 5a: Office type-work pattern fit is positively associated with the in-role performance level through the flow level.

Hypothesis 5b: Office type-work pattern fit is positively associated with the extra-role performance level through the flow level.

Therefore, this research aims to study the dynamic relationship between office workers' flow and their in-role and extra-role performance, considering work pattern-office type fit as a predictor of the development of these three variables. In Figure 2, we graphically represent the model with the hypothesized relationships to be tested in the study.

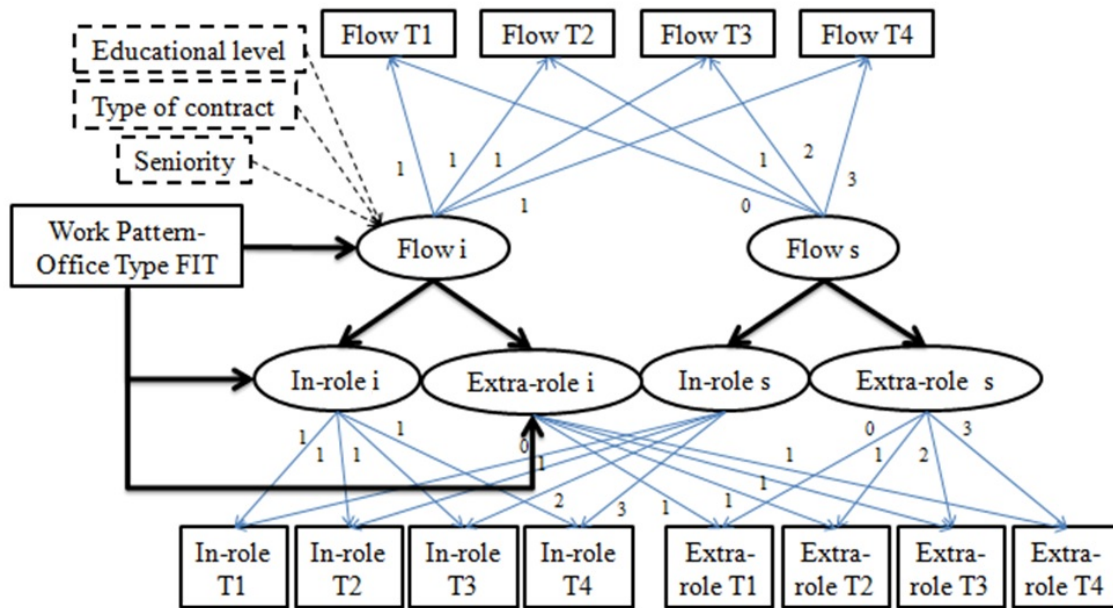


Figure 2. The proposed research model in this study
Note. i (intercept or initial level); s (slope)

Materials and Methods

Sample and Procedure

The office workers were informed about the study design and the data collection methods. Office workers from five companies in the Valencian Community (Spain) ($n = 83$) were asked to voluntarily complete the baseline questionnaire and participate in a diary study during work on four consecutive days. They were informed that they could withdraw from the study at any time. Sixty-seven per cent of the sample were women. The participants ranged in age from 20 to 62 years ($M = 39.67$; $SD = 8.84$). Eighty-five per cent of the sample had at least a university degree.

The present study was approved by the institutional ethics committee. Additionally, measures were taken to ensure the confidentiality of the data.

Measures

We used a diary questionnaire and a baseline questionnaire to collect data. Each employee was provided with a tablet containing the questionnaires, and the researchers indicated when they had to fill out the diary. The diary questionnaire assessed state measures that revealed participants' levels of these characteristics on the specific occasions tested. The baseline questionnaire was used to collect sociodemographic data and work pattern information.

State Flow was measured with a two-item scale (White & Dolan, 2009). The respondents were asked to indicate the extent to which they had had these types of experiences during the past few hours at work (engaged and focus). The response scale ranged from 1 (not at all) to 7 (a lot). The mean Spearman-Brown coefficient for the scale at the four time points was .71.

State Work Performance was measured with six items assessing office workers' performance, three items for in-role performance (sample item: "Now I fulfill all the requirements for my job") and three items for extra-role performance (sample item: "I voluntarily did more than what was required of me") (R. D. Williams, 1991; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009a). The respondents were asked to indicate on a scale ranging from 1 (strongly disagree) to 7 (strongly agree) the extent to which they agreed with a series of statements about the work they had been doing during the past couple of hours. The mean Cronbach's *a* for the in-role and extra-role scales at the four time points were .86 and .74, respectively.

Finally, *Office type-Work Pattern fit (and misfit)* was measured using combined information about work patterns and office type. To obtain it, we first measured work

patterns using a two-dimensional scale. The first subdimension was composed of one item referring to the frequency of performing complex tasks (“How often does your job require you to do complex tasks?”), and the second subdimension was composed of one item referring to the frequency of interacting with other people at work (“How often does your job require you to work with colleagues, clients, or external people?”). The response scale ranged from 1 (never) to 4 (quite often). Second, we determined each employee’s office type by considering the number of co-workers in his/her office (See Neufert, 1995) because the size of the group sharing a workspace seems to play a decisive role in worker satisfaction (Danielsson, 2010). There was “fit” when the work pattern corresponded with the most appropriate office type (see Table 1). There was “misfit” in every other case.

Additionally, we asked employees for some sociodemographic data to control the effect of type of contract, seniority, and educational level on flow. First, temporary workers had lower expectations about job security (De Cuyper & De Witte, 2007), which has been found to be related to higher organizational commitment and wellbeing (De Witte, 1999, 2005). Second, seniority may be a critical contract characteristic because it is the main way to gain access to privileges and entitlements (De Cuyper & De Witte, 2007). Third, both seniority (Eisenberger, Jones, Stinglhamber, Shanock, & Randall, 2005) and educational level (Bennet, Dunne, & Carré, 2000) might be associated with greater perceived skills.

Data Analysis

First, in order to determine each employee’s work pattern (considering both task complexity and the interaction with others at work variable), we performed Two-Step Cluster Analysis in SPSS v.22. Because all the variables used in this study were independent and had a normal distribution (skewness $< \pm 2$, and kurtosis $< \pm 7$, Ryu,

2011), we used the log-likelihood approach (SPSS Inc, 2001). In this way, we obtained four groups: 1) Middle-interactive, high complexity (38.55% of participants), 2) Interactive, high complexity (25.30% of participants), 3) Interactive, low complexity (27.71% of participants), and 4) Non-interactive, low complexity (8.43% of participants).

Once we had established these groups, and considering the Neufert (1995) approach (see Figure 1), we determined “fit” to be when the work pattern corresponded to its most appropriate office type (37.35% of participants), and “misfit” to be every other case (62.65% of participants).

Second, in order to carry out Latent Growth Modeling to determine the relationships between the variables of interest, we used MPlus software (Muthén & Muthén, 2015). To this end, we use a diary approach, which allows us to focus on states that change across time and reflect how an individual feels at certain points in time (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009b). Furthermore, to test the significance of the indirect effects, we produced confidence intervals using the Monte Carlo Method for Assessing Mediation (MCMAM) (Preacher & Selig, 2012), with 20000 repetitions.

In order to assess the model fit, we examined the RMSEA (Root Mean Square Error of Approximation), CFI (Comparative Fit Index), and TLI (Tucker-Lewis Index) goodness of fit statistics. For the ML method, values of less than .08 for RMSEA typically reflect a reasonable fit, and values greater than .90 for CFI and TLI typically reflect acceptable fit to the data (Little, 2013).

Results

Preliminary Results: Classification of Fit and Misfit Groups.

A four-cluster solution was obtained using Two-Step cluster analysis. The results indicated this preferred solution because it minimized the BIC value (101.860) and the change in them between adjacent numbers of clusters selection criteria (-3.222). The average silhouette was .60, and both (task complexity and interaction with others) predictors explained at least 78% of the cluster analysis results. The final clusters were: 1) “Non-interactive, low complexity”; 2) “Middle Interactive, high complexity; 3) “High interactive, low complexity”; and 4) “High interactive, high complexity”. On the basis of this result, and also considering the recommended office type for the type of work performed (Gottschalk, 1994; Laing, Duffy, Jaunzens, & Willis, 2004; Neufert, 1995), we divided our sample into two groups: a) the “fit” group (workers in an adequate office type for their work pattern) and b) the “misfit” group (workers in an inadequate office type for their work pattern) (see Table 1).

Table 1
Type of office-work pattern fit.

Type of office	Work pattern
Cellular office (1-2 people)	Middle interactive, high complexity
Cellular office-small group (up to 4-6 people)	Interactive, high complexity
Group office (6-20 people)	Interactive, low complexity
Open offices (>20 people)	Non-interactive, low complexity

Test of Hypotheses: Latent Growth Modeling.

Descriptive analyses are shown in Table 2. We carried out t-tests and χ^2 significance tests for the differences in the demographic variables between the groups (“fit” and “misfit”). No differences were found between groups.

Table 2
Fit-misfit: sample characteristics

	FIT (n=31) <i>n</i> (%)	MISFIT (n=52) <i>n</i> (%)	<i>Chi</i> ²	<i>P</i>
<i>Age</i> ¹	38.68 (9.31)	40.27 (8.60)	-0.791	.43
<i>Sex</i> ²				
Female	22 (26.5%)	35 (42.2%)	0.121	.73
Male	9 (10.8%)	17 (20.5%)		
<i>Job level</i> ²				
Manager	2 (2.4%)	2 (2.4%)		
Highly-qualified professional	10 (12.0%)	17 (20.5%)		
Technician	8 (9.6%)	13 (15.7%)	0.739	.95
Administrative	9 (10.8%)	18 (21.7%)		
Junior employees	0 (0.0%)	0 (0.0%)		
Other	2 (2.4%)	2 (2.4%)		
<i>Marital status</i> ²				
Single	8 (9.6%)	14 (16.9%)		
Married/living with partner	23 (27.7%)	37 (44.6%)	0.630	.73
Widowed	0 (0.0%)	0 (0.0%)		
Separated/divorced	0 (0.0%)	1 (1.2%)		
<i>Salary</i> ²				
Less than 600€	2 (2.4%)	4 (4.8%)		
600€- 1000€	4 (4.8%)	0 (0.0%)		
1000€- 1499€	13 (15.7%)	21 (25.3%)	10.434	.06
1500€- 1999€	8 (9.6%)	15 (18.1%)		
2000€- 3000€	3 (3.6%)	12 (14.5%)		
More than 3000€	1 (1.2%)	0 (0.0%)		

Note. ¹ Means, standard deviations, and t test. ² The number in parentheses represents the percentage of the total.

Table 3 presents the means, standard deviations, and significance tests for the differences between the ‘fit’ and ‘misfit’ groups in the levels of the variables of interest in our sample. Workers from the FIT and MISFIT groups present similar levels and average levels of flow and in-role and extra-role performance at the different time points.

Table 3
Descriptive statistics for the levels of the variables of interest in the current study

	FIT		MISFIT		t	p
	M	SD	M	SD		
Flow t1	5.63	0.88	5.48	1.00	0.67	.51
Flow t2	5.76	0.81	5.29	1.15	1.94	.06
Flow t3	5.60	1.10	5.38	1.13	0.80	.43
Flow t4	5.40	1.19	5.29	1.30	0.37	.72
Flow - mean	5.52	0.91	5.46	0.80	0.28	.78
In-role Performance t1	5.90	0.76	5.81	0.83	0.45	.66
In-role Performance t2	5.94	0.81	5.91	1.09	0.13	.90
In-role Performance t3	5.80	0.94	5.82	1.14	-0.07	.95
In-role Performance t4	5.99	0.81	5.95	1.03	0.17	.86
In-role Performance - mean	5.91	0.70	5.99	0.77	-0.37	.71
Extra-role Performance t1	4.18	1.52	4.16	1.48	0.06	.95
Extra-role Performance t2	4.39	1.31	4.26	1.67	0.37	.72
Extra-role Performance t3	4.47	1.45	4.24	1.57	0.59	.56
Extra-role Performance t4	3.84	1.58	4.08	1.47	-0.65	.52
Extra-role Performance – mean	4.29	1.37	4.37	1.38	-0.22	.83

Latent Growth Model for Flow

The fit of the linear LGM for flow was good (see Table 4). The results showed that the variance in the level of flow was significant, but the variance in the change of flow was not significant, suggesting that individuals differed from each other in the level of flow, but not in the rate of mean-level change. The results also showed that the initial level of flow was not associated with its subsequent linear change ($p > .05$).

Table 4
Parameter estimates (unstandardized forms) of latent growth models for flow and in-role and extra-role performance (each in a separate analysis)

LGM	Growth parameters		Goodness-of-fit indexes					
	Estimate	<i>p</i> value	X^2	df	<i>p</i> value	CFI	TLI	RMSEA
<i>Flow</i>			2.826	5	.73	1.00	1.03	0.00
<i>Means</i>								
Level	5.52	.01						
Linear trend	-0.05	.30						
<i>Variances</i>								
Level	0.67	.01						
Linear trend	0.06	.06						
<i>In-role</i>			2.248	4	.69	1.00	1.02	0.00
<i>Means</i>								
Level	5.82	.01						
Linear trend	0.04	.17						
<i>Variances</i>								
Level	0.53	.01						
Linear trend	0.02	.31						
<i>Extra-role</i>			5.45	4	.24	0.99	0.99	0.07
<i>Means</i>								
Level	4.18	.01						
Linear trend	-0.05	.28						
<i>Variances</i>								
Level	1.69	.01						
Linear trend	0.11	.01						

Latent Growth Model for In-role and Extra-role Performance

The fit statistics for the initial LGM for in-role and extra-role performance were $X^2(5) = 5.838$, $p = .32$, CFI = 1.00, TLI = 0.99, and RMSEA = 0.05; and $X^2(5) = 10.727$, $p = .06$, CFI = 0.97, TLI = 0.96, and RMSEA = 0.12, respectively. The modification indices suggested that estimating the covariance between time-specific residuals at T2 and T3 would improve the model fit. After this specification, the fit of the models was good (see Table 4). First, in the case of in-role performance, the results indicated that there were no mean-level changes in in-role performance over time (see Table 4). The variance in the mean was significant, but the variance in the change factors was not significant. The results also showed that the latent level factor of in-role performance was not associated with its latent linear change factor ($p > .05$), which

means that the relationship between the in-role performance intercept or the starting point and the change in this variable (the initial level will not influence the change intensity in any direction) is not significant. Second, regarding extra-role performance, the results indicated that there were no mean-level changes in extra-role performance over time (see Table 4). However, the variance in the mean and change factors was significant, suggesting that individuals differed from each other, not only in the level of flow, but also in the rate of mean-level change. The results also showed that the latent level factor of extra-role performance was not associated with its latent linear change factor ($p > .05$).

Association Between Flow and In-role and Extra-role Performance

In order to investigate the relationship between flow and in-role and extra-role performance, the previous LGMs were combined. Figure 3 presents the results of the Latent Growth Modeling. The fit of the associative LGM was $X^2(103) = 159.134$, $p = .01$, CFI = 0.90, TLI = 0.89, and RMSEA = 0.08. The modification indices suggested estimating the covariance between the outcomes at their time-specific residuals. After this specification, the fit of the model was good $X^2(99) = 137.176$, $p = .01$, CFI = 0.93, TLI = 0.92, and RMSEA = 0.07. The results showed, first, that the latent initial level factor of flow was positively associated with the latent initial level of both in-role and extra-role performance ($Est. = 0.89$, $p = .01$ and $Est. = 0.57$, $p = .01$, respectively). The higher the level of flow, the higher the level of in-role and extra-role performance. Second, the latent linear change factors of flow and in-role and extra-role performance were also positively associated ($Est. = 0.55$, $p = 0.01$ and $Est. = 1.02$, $p = .01$, respectively): the greater the change in flow, the greater the change in in-role and extra-role performance. Taken together, these findings offer support for Hypotheses 1a, 1b, 2a

and 2b: both the levels and changes in flow and in-role and extra-role performance are positively associated.

The role of Work Pattern-Office Type Fit

Based on the direct effect of Work Pattern-Office Type FIT on workers' flow, the results yield support for hypothesis 4 because it was significant ($Est. = 0.40, p < .05$). Regarding the direct effect of Work Pattern-Office Type FIT on workers' in-role and extra-role performance, the results do not provide support for hypotheses 3a and 3b because they were not significant ($p > .05$). When considering the indirect effect through flow, the results support hypothesis 5a regarding the effect on in-role performance ($IC [LL = .01; UL = .73]$), but not hypothesis 5b regarding the effect on extra-role performance ($IC [LL = -.01; UL = .58]$).

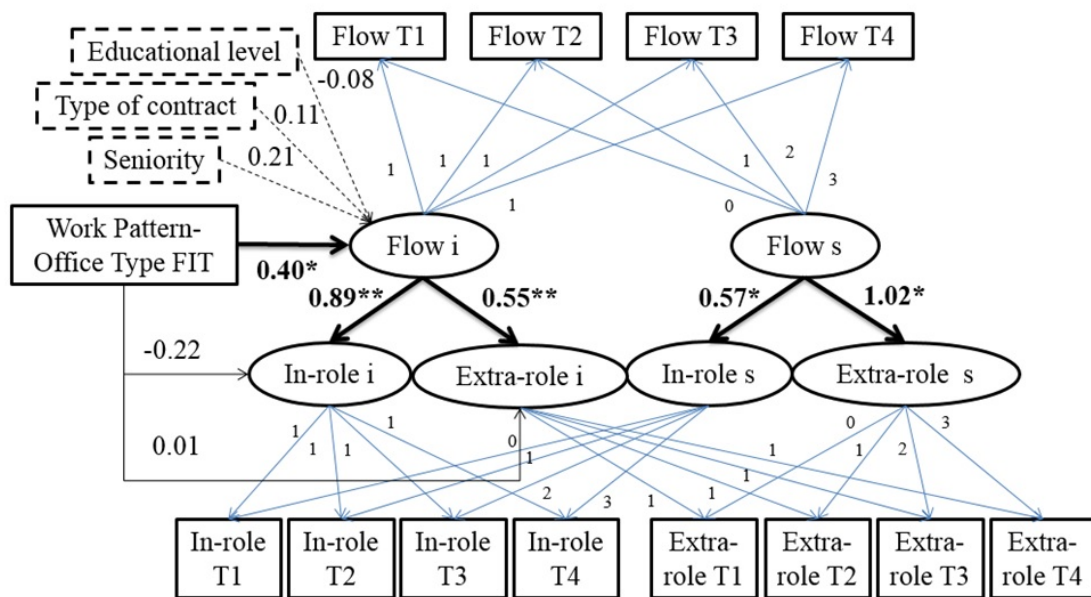


Figure 3. Latent Growth Modeling Results

Note. ** $p \leq .001$; * $p \leq .05$

Discussion

The aim of the present research was to study the dynamic relationship between office workers' flow and their in-role and extra-role performance, considering work

pattern-office type fit as a predictor of the development of these three variables. The results show that the initial level of flow is related to the initial level of both in-role and extra-role performance, which means that higher levels of flow are related to higher levels of both types of performance. Additionally, the change in flow produces changes in both in-role and extra-role performance (the greater the increase/decrease in flow during the week, the greater the increase/decrease in in-role and extra-role performance). Furthermore, Work Pattern and Office Type Fit increases the levels of flow and, indirectly, the levels of in-role performance.

Theoretical contributions

Our expectation about the positive and dynamic association between flow and in-role and extra-role performance received support. The levels of flow and in-role and extra-role performance were strongly related, as were their associated changes over time, providing evidence for a dynamic relationship, as proposed by Demerouti and colleagues (2012). In this regard, these findings are consistent with previous results found between flow and performance using a cross-sectional approach (Demerouti, 2006), but adding value because the dynamic association received support from our results. This means that, because the variability associated with a construct at a given time can be quite different from the variability associated with a construct over time, it is necessary to articulate the role of time and describe the intra-unit change process (Ployhart & Vandenberg, 2010) through the use of latent growth modeling, thus yielding a dynamic relationship.

Consistent with our hypothesis, the results also showed that Work Pattern and Office Type Fit was an important covariate that was positively associated with the levels of flow: when there is Fit, the level of flow at work is higher than when there is misfit. Furthermore, in contrast to our hypotheses, Work Pattern and Office Type Fit did

not directly affect in-role (Gregory et al., 2010) and extra-role performance (Goodman & Svyantek, 1999; Gregory et al., 2010). However, Work Pattern and Office Type Fit indirectly influenced in-role performance (through flow). These findings are coherent with results of previous studies indicating that a job-person fit may positively influence workers' wellbeing-related processes (Chen et al., 2012), and that flow is related to working conditions (Fullagar & Kelloway, 2009) and, in turn, may influence job performance (Bakker et al., 2011; Demerouti, 2006). Therefore, the results agree with the person-organization fit model (Chatman, 1989; De Clercq et al., 2008) because they show that compatibility between individuals (i.e., work patterns) and organizations (i.e., office type) affects employees (e.g., flow). Moreover, our results match those from other empirical studies suggesting that person-organizational fit affects work outcomes (Goodman & Svyantek, 1999; O'Reilly III, Chatman, & Caldwell, 1991). Finally, contrary to what we expected, Work pattern and Office Type Fit did not affect extra-role performance through flow, perhaps because extra-role activities are more related to personal and social variables (Motowidlo & Van Scotter, 1994) than to environmental characteristics.

Limitations and Strengths

There are some limitations that should be taken into account before generalizing the results of the present study. First, in the present study, we used purely self-reported data, which are prone to response styles, personality characteristics, and affective states (Kompier, 2005). Second, longitudinal research with different measurement points over a longer period of time would offer more flexible possibilities to estimate change and its shape over time. Third, in the present study, we consider the effect of office type-work pattern (mis)fit on flow and performance at work; however, more environmental factors should be considered in this regard.

Despite these limitations, the major strengths of this study include the novel statistical methods employed and the use of diary data, which is still relatively rare in occupational studies. This study used LGM to more thoroughly analyze the relationship between flow and in-role and extra-role performance. The LGM analysis gave us information about the dynamic relationship between these variables. Furthermore, this study highlights the important role of the work pattern-office type fit in creating optimal conditions that enhance workers' level of flow.

These findings have important theoretical implications. First, we understand that flow and in-role and extra-role performance vary over time, and our study design allows us to study these changes and their dynamic relationship at different points in time. Second, in addition to merely having access to certain types of offices, we contribute to the existing knowledge about the association between different office types and task requirements. Third, our study is one of the first to provide empirical evidence for beneficial effects of office type-work pattern fit on workers' levels of flow and, in turn, on workers' in-role performance. Therefore, we showed that the office type – work pattern fit conceptualization of person –environment fit theory could describe why activity-based offices are beneficial. Thus, we have added another application of person-environment fit theory to the literature.

Practical Implications and Conclusion

Additionally, this study also has practical implications. Our results are relevant for improving the design of office environments by taking into account each employee's work patterns and, thus, creating flow-evoking working conditions through workspace (re)design. To enable and sustain beneficial effects such as higher flow levels (and, thus, higher in-role performance), an office type –work pattern fit created by developing activity-based offices is fundamental. Management and the human resources department

need to invest effort in office environment rearrangement, and workers' participation in decisions about workspaces may help to design an office that truly meets workers' needs.

Flow is an important positive psychological variable that can be influenced by the design of work and the workspace. Providing adequate workspaces for employees' work patterns is more likely to induce flow, which is likely to have beneficial consequences for the organization. Furthermore, both flow and performance are state variables that are connected to each other in a dynamic relationship. In this regard, our results suggest that flow is a positive psychological state that fully mediates the relationship between certain job characteristics, such as work pattern-office type fit, and state in-role performance among office workers.

It is necessary to explore how different work characteristics can help to create more positive workplaces (Turner, Barling, & Zacharatos, 2002). Consistent with this idea, this study highlights the importance of promoting flow in workers by creating flow-evoking working conditions through workspace (re)design. As previously suggested (Bakker & van Woerkom, 2017), organizations should offer resourceful environments that are more conducive to flow, indirectly promoting job performance and increasing the benefits for both the employees and the organization.

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