# Rural NEETs' hope across the COVID-19 pandemic: A bioecological longitudinal mapping

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Abstract

My aim is to map the socioecology of rural emergent adults Not in Employment, nor in Education or Training (NEET)'s hope during the COVID-19 pandemic period. The study involved 213 participants (*M* age = 26.35; *DP* = 4.15; 66.20% women) in a 3-wave longitudinal study running between June 2020 and June 2021, in The Azores Islands, Portugal. Inspired by the bioecological model and using a Linear Mixed Model approach, I found that: (a) female NEETs presented a significantly worse evolution of hope dimensions levels compared to men; (b) while inactive NEETs' agency estimates increased as a result of an increment in Public Employment Services' (PES) support, unemployed NEETs' estimates decreased overtime to a point that they were below inactive NEETs' agency rates at higher levels of PES support; and (c) at higher levels of collectivism, unemployed NEETs showed more positive and significant estimates of perceived ability to achieve goals compared to inactive NEETs, conversely to what happened at lower levels of perceived collectivism. These results point out the need to better tailor PES' services and interventions to different types of NEETs, addressing structural inequalities (e.g., gender gap) or the role of service digitalization for rural NEETs' different subgroups.

Keywords: NEETs; hope; bioecological model; COVID-19; public employment services.

## Introduction

Wars, hunger and pandemics are disaster situations that change not only personal worldviews but humankind. Under extreme circumstances, individuals may start to perceive themselves differently, together with their most significant relationships, the institutions around them and the culture in which they are immersed. Such adjustment may lead to new personal priorities that may have seemed distant or even impossible in the recent past.

Following the COVID-19 pandemic, self-representations and worldviews have been shifting. Such changes are even clearer among emergent adults. Emerging adulthood spreads from 18 to 29 years old and has a substantial transitional component driven by greater openness to new social relationships and roles, the development of wisdom-related knowledge and greater maturity (Arnett, 2023). However, it is also a period shaped by the socioeconomic environment with significant impact on the school to work transition (Masdonati et al., 2021). For the past two decades, the school to work transition has been more erratic, often dominated by marginalization and precariousness (Eurofound, 2014). COVID-19 has further exposed emergent adults, particularly those who are more vulnerable, to having little or no prospects of finding decent jobs, meaning those granting access to full and just employment conditions and to a meaningful career (Masdonati et al., 2021).

My overriding aim is to understand how emergent adults Not in Employment, nor in Education and Training (NEET), namely their hope's social ecology, evolved across the most critical period of the COVID-19 pandemic. By default, the NEETs age range is the same as for emergent adults (Arnett, 2023). However, NEETs tend to face the challenges typical from early adulthood into their early thirties, due to their troubled transition to the labour market. Meanwhile, some international bodies have started to

consider the 18-34 age range to refer to the NEET condition such as the Eurostat. Therefore, we adopted this larger age range of reference, also considering that transitions tend to be longer and more complicated in rural communities.

In my work, I specifically follow Snyder's (2000) definition of hope as a positive motivational trait combining a successful perception of goal-directed energy (agency) with perceived capacity to achieve goals (pathways). Hope is a building block of emerging adults' positive development (Esteves et al., 2013). Greater hope is associated with increased well-being (Wong & Lim, 2009), lower impulsivity (Archer et al., 2019) or higher self-esteem (Esteves et al., 2013). Importantly, hope also correlates with other psychological constructs that are fundamental for achieving higher levels of professional development and satisfaction, such as stronger self-efficacy perspectives (Esteves et al., 2013) or improved vocational prospects, including greater career exploration (Hirschi et al., 2015).

My research goal is grounded on the bioecological model. The central assumption of this theoretical framework is that personal development and well-being results from permanent interactions between protective and risk factors occurring at five interdependent social ecological levels (Bronfenbrenner & Morris, 2006). The bioecological model levels are: (a) the *individual*, comprising the person's demographic and temperamental characteristics, including his/her activities and social roles and skills, which altogether create a personal model of meaning attribution; (b) the *microsystem*, covering subjective experiences stemming from specific relationships with family, friends, work peers, or teachers and the connections between these different sources of support; (c) the *mesosystem*, referring to the multiple organizational contexts such as the workplace, school, clubs or associations in which someone is involved; (d) the *exosystem*, corresponding to tangible resources (e.g., infrastructures) and wide

informal networks and their places, such as neighborhoods; and (e) the *macrosystem*, referring to cultural dispositions, including a pattern of ideologies, beliefs, values, or governance forms that, to different degrees, are settled at the regional, national, and international levels (Schoon & Heckhausen, 2019). The different layers of the model are shaped by the *chronosystem*, an intersection between a moment in a person's life and the historical period in which they are placed (Bronfenbrenner & Morris, 2006).

Relying on the bioecological model, my main aim stems from two specific goals. Firstly, I seek to understand how key hope drivers operating at different levels of the social ecology were associated with the evolution of NEETs' hope during the pandemic. At the individual level, I consider personal traits, namely age, gender, educational level and NEET type (unemployed or inactive). At the microsystem level I include social support provided by family and friends. At the exosystem level, I add formal support provided by institutions, specifically by Public Employment Services (PES). At the macrosystem level I consider values in the form of collectivism. At the chronosystem level, I explicitly conduct a longitudinal study, cutting across a very specific period, the COVID-19 crisis. Importantly, I have not considered any factors at the mesosystem level, due to the very low engagement in social spaces (e.g., associations) reported by the participants. Secondly, I am also interested in discovering how the above-mentioned social factors differed across inactive and unemployed NEET subgroups, for explaining hope dimensions' evolution in the same period. Inactive NEETs correspond to those who are not actively seeking a job, including young women involved in family care duties, those with physical/psychological impairments, as well as discouraged groups who have given up looking for a job. Unemployed NEETs are those actively searching for a job, whether in the short- (less than 12 months) or in the long-term (more than 12 months) (Mascherini, 2019). Thus, inactive NEETs face greater adversity to develop

optimal psychological conditions for establishing a professional pathway, as they struggle with gender stereotypes (Sadler et al., 2015), health issues and/or discouragement, particularly in rural areas (Baeck, 2016).

My research efforts are justified by two reasons that go beyond the mainstream knowledge about the school to work transition. Firstly, the uncertain socioeconomic context following COVID-19, aggravated by the recent wars, requires a deeper understanding of the social ecological drivers of both transition to the labor market concrete outcomes, such as employment shares or income issues, and relevant psychological descriptors of vulnerable young generations' employability. In the EU framework, employability means a combination of factors (such as job-specific skills and soft skills) that enable individuals to progress towards or enter into employment, stay in employment and progress during their careers (Eurofound, 2018). Among the required soft skills are psychological attributes such as future time projection cognitions, including hope. Indeed, personal agency and the capacity to invest in goal achievement promote more personal involvement in tasks (McInerney, 2004), as well as the ability to negotiate, challenge, or change demanding live circumstances with an impact on professional choices (Hammarström et al., 2015).

Secondly, NEET shares in rural areas are higher and have remained higher after the pandemic compared to urban areas, especially in Eastern and Southern European countries (Eurostat, 2021). This is particularly true in The Azores. The archipelago stands out for having had the highest NEET proportion among Portuguese regions for the past decade (Governo Regional dos Açores, 2022). Understanding the rural NEETs' hope social ecology in regions such as The Azores is vital to address the mounting figures, as younger generations' social support structures in the countryside are usually polarized between the centrality of informal support sources and the shortage of

adequate institutional support (Athanasou & Torrance, 2002). This polarization often results in poorer professional opportunities and outcomes (Almeida & Simões, 2020), including inactivity and unemployment (e.g., Sadler, 2015; Mascherini, 2019), shaped by experiences that may thwart NEETs' hope.

**Rural NEETs' hope in The Azores from the bioecological model standpoint**

The efforts to establish a psychological profile of rural NEETs in Southern Europe regions are still limited. Nevertheless, the scarce empirical evidence coming out from a few reports, combined with overall findings about pivotal determinants of emergent adults hope levels helps to set the ground for the socioecology of their hope perceptions.

At the individual level, gender stands out as a predictor of emergent adults' hope levels. Some research efforts have showed that female emergent adults are less positive about their future (Almeida & Simões, 2020). Overall, these women's hope is upset by greater challenges to combine non-traditional female roles in the labor market with for instance the desire to have children (Tuval-Mashiach et al., 2019). In the case of rural NEETs, prevalent gender stereotypes still impose a strict division of social and professional duties between men and women (Bæck, 2016; Morris, 2015), often limiting the latter to family care and protection tasks. Thus, it is not surprising that women constitute most of the inactive NEETs, including in The Azores (Governo Regional dos Açores, 2022). This outcome is mostly due to family care duties impacting negatively on their professional prospects (Mascherini, 2019).

Furthermore, recent findings show that as age increases, the chance of being NEET also grows across the EU states (Mascherini, 2019). The Azores is no exception here (Almeida & Simões, 2020). Previous empirical evidence demonstrates that older rural NEETs in this archipelago aged 25 to 29 become more pessimistic towards their

professional future (Almeida & Simões, 2020), possibly because they have experienced more unemployment spells and precariousness compared to younger NEETs under 24 years old (Eurofound, 2014). Parallel findings show that NEETs also tend to depict an unhealthier lifestyle (Hold et al., 2018), worse educational aspirations (Tayfur et al., 2022) and poorer mental health compared to other groups of emerging adults (Caroleo et al., 2020). These pieces of evidence indirectly show that the odds of NEETs remaining hopeful as years go by may become lower.

Finally, school underachievement is another significant individual factor shaping rural NEETs' hope levels (Mascherini, 2019; Tuval-Mashiach et al., 2019). In rural and peripheral areas such as The Azores, lower educational levels are driven by lower parental social capital, a lack of diversified curricula (Bæck, 2016), as well as a selective youth outmigration trend (Farrugia, 2016) with the less academic-minded emergent adults staying in these areas. This brain draining phenomena is quite relevant in The Azores Islands. While there is a university in the region, many of the most academic-minded students move to Portugal mainland to complete tertiary education. The intentions to return are both shaped by economic reasons and community attachment levels (Simões et al., 2021), but returning rates are low, with a negative impact for the qualification of the labour force (Governo Regional dos Açores, 2022). Altogether, it is important to notice that individuals experiencing the NEET condition show lower levels of future orientation (Felaco & Parola, 2022).

At the microsystem level of the bioecological model, the role of the support provided by families for keeping youth hopeful steadily decreases in the beginning of adulthood (Archer et al., 2019). However, groups of vulnerable emerging adults show greater reliance on family support to remain hopeful into adulthood, such as ethnic minorities (Archer et al., 2019) or NEETs (Hold et al., 2018; Jeong et al., 2021).

Overall, in rural areas the support provided by rural families helps buffering negative outcomes for NEETs, across tangible dimensions (e.g., housing). This support is also relevant for boosting NEETs psychological attributes (e.g., sense of self-efficacy), including in The Azores (Simões et al., 2018).

Overall, the transition to adulthood brings a greater reliance on close friendships (Arnett, 2023). By then, friends' support becomes pivotal to improve one's well-being and future-time perspective (Azmitia et al., 2013). However, it remains unclear the role of friends in shaping vulnerable emergent adults, and particularly of rural NEETs hope. Thus, this research effort constitutes a small contribution to understand these connections from a socioecological perspective.

At the exosystem level higher quality support for the school to work transition provided by institutions such as welfare or PES upholds hope components such as agency. This is especially true in European Northern countries, contrary to Southern European countries where the transition from school to work is dominated by sub-protective institutional systems, featuring a high proportion of informal or insecure employment conditions and the lack of an inclusive social safety net (Schoon & Heckhausen, 2019). Poor PES support, namely a limited capacity to match European policy proclamations with both regional socioeconomic conditions (Shore & Tosun, 2019) and rural NEETs' needs generally hinder future-oriented cognitions among this subgroup of emergent adults. Importantly, having access to proper PES advice, guidance and support is key for improving psychological readiness for entering the labour market, particularly among the most vulnerable groups (Smoter, 2022), including in rural areas (Mazzocchi et al., 2024). The shortage or lack of adequate on-the-ground PES support in rural areas is often compensated by friends and family support tips and advice (Bello & Cuzzocrea, 2018). The excessive role of informal relationships on rural

emergent adults' professional development related cognitions also stems from a generalized distrust of institutions, a finding that has been reported for NEETs living in The Azores Islands (Simões et al., 2018). Unsurprisingly, institutional distrust among rural NEETs is high as their prior and most significant involvement with institutions occurred in school, where they often went through successive negative experiences of failure and incompetence (Bæck, 2016; Farrugia, 2016).

At the macrosystem level of the bioecological model, geolocation plays a crucial role in rural NEETs' prospects (Caroleo et al., 2020). In 2021, NEETs' rates were higher in rural areas (13.70%) compared to cities (12.20%). More importantly, this pattern was evident in 12 out of the 27 EU countries, especially in Southern countries (e.g., Greece) and Eastern European countries (e.g., Hungary or Romania), with the urban/rural gap reaching to 10 and even 20 percentual points (Eurostat, 2022). Place influence in NEETs' ability to develop and achieve goals is often filtered through values. Overall, liberal values uphold greater levels of self-enhancement (Hult et al., 2023) and individual agency, especially in times of more favorable economic conditions (Schoon & Heckhausen, 2019). In rural areas such as The Azores the past and the present are more salient than the future because of well-established collectivistic values. Collectivism here refers to community preference for loyalty to family and ingroups, and for fulfilling survival needs (McInerney, 2004; Yoo, Donthu, & Lenartowicz, 2011). Altogether, collectivistic dispositions are infused by more hierarchical and asymmetrical relationships, which often limit emerging adults' self-expression and hope (Morris, 2015). Remaining loyal to local values ensures access to important labour market-related resources provided by family, friends and neighbors (e.g., job recommendations), especially in Southern European countries (Simões et al., 2022; Bello & Cuzzocrea, 2018). Still, at least one study shows that geolocation (rural *vs*

urban) does not differentiate levels of hope among adolescents and emergent adults (Kemer & Atik, 2012).

Finally, at the chronosystem level, the period reported in the study poses very specific challenges for vulnerable emergent adults hope levels. In The Azores Islands, lockdowns and sanitary restrictions were not so prolonged and harsh as in other parts of Portugal, but such measures led to an increase of youth unemployment rates or a lower number of training opportunities (Governo Regional dos Açores, 2022). Overall, this historical period narrowed the odds of a smoother transition to the labour market, with expected consequences for NEETs future-oriented cognitions such as hope.

**Present study**

My aim was to understand the social ecology of rural NEETs' hope inspired by the bioecological model (Bronfenbrenner & Morris, 2006) during the COVID-19 pandemic. Therefore, I tested three hypotheses. Firstly, I anticipated an increase in both hope dimensions over time among male, younger, and more educated participants, and when levels of informal support and collectivism were higher, with the same effect not being met under higher levels of PES support (Hypothesis 1). My hypothesis relies on two main findings stemming from references mentioned in the previous subsection: (a) the specified demographics define those NEETs who are closer to reentering the labour market, even in a critical moment such as pandemic (Bæck, 2016; Mascherini, 2019; Tuval-Mashiach et al., 2019); and (b) informal support and more conservative worldviews associated with support from family or friends, tend to shape job finding efforts in rural areas, including in the selected research site (Bello & Cuzzocrea, 2018; Simões et al., 2018).

Secondly, I anticipated that inactive NEETs showing stronger PES support ratings would also display stronger agency and pathways ratings, while inactive NEETs depicting lower levels of PES support would show weaker agency and pathways levels, when compared with unemployed NEETs in similar conditions of PES support (Hypothesis 2). There is some evidence showing that institutional support, such as PES support, offers unique resources in terms of counseling or advice able for supporting psychological resources and internal skills for those who are in a more vulnerable situation regarding the transition to the labour market, such as inactive NEET (Mazzocchi et al., 2024; Smoter, 2022).

Finally, I expected that unemployed NEETs showing stronger collectivism ratings would also display stronger agency and pathways ratings, while unemployed depicting lower levels of collectivism would show weaker agency and pathways levels, when compared with inactive NEETs in similar conditions of collectivism (Hypothesis 3). Given the centrality of loyalty to local ties in rural areas, it is feasible that dominant values such as collectivism end up playing a more important role in emergent adults' psychological constructs associated to professional issues (Hult et al., 2023), particularly in rural areas (Bello & Cuzzocrea, 2018). This influence is more relevant among unemployed NEETs who, contrary to inactive NEETs, are more often in and out the workforce, especially in times of economic hardship (Schoon & Heckhausen, 2019).

I tested my hypotheses by conducting a longitudinal study covering three-time points: June 2020 (Time 1), December 2020 (Time 2) and June 2021 (Time 3). All study variables except for demographics were collected for all 3-time points. Data was assessed using a Linear Mixed Model (LMM) approach. I conducted a power analysis

for each main effect using G*Power software before conducting the study (Faul et al., 2009). For models with an estimated error probability of $\alpha = .05$, medium effect size $f^2 = .15$ and seven predictors the required sample size was $n = 153$.

## Method

### Context

In 2020, NEET shares in Portuguese urban and rural areas were below the average EU rates. However, the share of NEETs in Portuguese rural areas has increased during the first year of the COVID-19 crisis and is declining slower compared to the share of NEETs in Portuguese urban areas (Simões et al., 2023).

In The Azores, the NEET rates are systematically above the national rate for the past decade. It constitutes, therefore, a structural social problem in the region. In 2020, 19.7% of young people aged 15-34 years old in this region were NEET, above the 2019 rate of 16.3% and well-above the national average for 2020 (10.30%) (Instituto Nacional de Estatística, 2021). These high shares of NEETs in the region are largely explained by the fact that The Azores also shows the highest regional rate of early school leaving by regions in Portugal. In 2020 early school leaving reached 27.0% in the archipelago also well-above the national rate of 8.9% (Instituto Nacional de Estatística, 2020a). While the share of early school leavers in the region declined in 2021 to 23.2%, in 2022 this figure had increased again to 26.5%, while it continued to decline at the national level, reaching to 5.9%. In 2019, The Azores also had the highest rate of youth unemployment across Portuguese regions (23.5%) (Instituto Nacional de Estatística, 2020b).

**Participants**

Regional employment services identified a universe of 941 NEETs aged 18 to 31 years old in their databases, by the end of April 2020. From these, 213 participated in this study on the basis that: (a) they had completed all measures for all time points; and (b) they were officially registered in PES in the 6 months prior to all rounds of data collection so that they could rate PES support. This resulted in a return rate of 22.64%. Of them, 141 were women (66.20%) with a mean age of 26.35 (*DP* = 4.15). Of these, 100 participants (46.90%) had concluded only basic education (9$^{th}$ grade) or less, 93 (43.70%) had attained secondary education (12$^{th}$ grade), and only 20 (9.40%) had a tertiary education degree. The participants were almost evenly distributed between inactive (108; 50.70%) and unemployed (*n* = 105; 49.30%) NEETs. Most of them (*n* = 134; 62.90%) still lived with their parents. The majority had access to unemployment benefits (*n* = 129; 60.60%). Importantly, only 36 of the participants (3.82%) mentioned that they were involved in clubs, associations or similar social structures.

**Measures**

All measures were collected for all 3-time points, except for demographics (collected in Time 1). Reliability estimates for these measures for all time points are shown in Table 1.

**Demographics.**

I characterized gender (0 = male; 1 = female); age in years; school attainment (0 = basic education (up to 9th grade); 1 = secondary education (12th grade); 2 = tertiary education); NEET typology (0 = unemployed NEETs; 1 = inactive NEETs).

**Informal social support.**

Informal social support was assessed using the social resources subscale of the Adult Resilience Scale (Friborg et al., 2003). This subscale assesses the odds an individual has of getting informal social support. This subscale comprises 7 items rated from 1 to 7. Items range between a negative and a positive extreme (e.g., I can discuss personal issues with – nobody/friends or family). Total scores range from 7 to 49, with higher scores meaning higher levels of informal social support.

**PES support.**

PES support was measured using an adapted version of the Health Institutional Social Support Questionnaire (Calheiros & Paulino, 2007). We specifically used the 12 items rated from 1 to 5 covering emotional support (e.g., the officers are understanding) and esteem support (e.g.: The officers acknowledge your skills). Total scores range from 12 to 60 points, with higher rates indicating higher levels of PES support.

**Collectivism.**

Collectivism was assessed using the Collectivism subscale of the Portuguese version (Marques, 2014) of the Individual Cultural Value Scale (Yoo et al., 2011) comprising 6 items rated from 1 to 5 (e.g.: Group success is more important than individual success). Possible scores range from 5 to 30, with higher scores denoting higher levels of collectivism.

**Hope.**

Hope was assessed using the Portuguese version (Marques et al., 2014) of the Snyder Hope Scale (Snyder et al., 1991). This scale consists of four items measuring Agency

(e.g., I can think about many ways of achieving what is important to me), four items measuring Pathways (e.g., I achieve the goals that I establish for myself), and four filler items. All items are rated from 1 to 8. Possible scores range from 8 to 32 in each subscale, with higher rating indicating greater agency and plan-making ability.

**Procedures**

The study was approved by the Ethics Committee of the Lisbon University Institute. An agreement with the employment department of The Azores Islands was signed clarifying the research goals, conditions and procedures. The longitudinal nature of the study and that the participants were surveyed at different time points of the COVID-19 pandemic, involving different levels of sanitary restrictions with impacts on personal employment and training prospects. The participants received a text message from PES informing them about the study goals. The link to the survey was sent one week later by PES to the participants also by text messaging. When clicking the link, all participants were (re)informed of the study aims and confidentiality terms and gave their consent to participate. They were also made aware that they could stop the survey and reinitiate it at any time within 72 hours. During that period, three messages were sent to the participants to reengage them with the study, in case they had not completed the survey. Participants restarted where they had stopped, and they were not allowed to overwrite answers.

**Data Analysis**

I performed the whole analysis using SPSS 28.0 software. I regressed the hope dimensions into each of the factors to test for linearity, outliers, and multicollinearity. Linearity assumptions were plotted using scatterplots of the residuals. Multicollinearity

was assessed using Variation Inflation Factors (VIF); values below four indicated non-overlap between factors (Argyrous, 2011).

I conducted bivariate and descriptive analyses for the study variables for all data collection timepoints. Skewness and kurtosis values between ± 2 were considered as an indicator of normal distribution (Gravetter & Wallnau, 2014). I also checked for gender, age, school level and NEET status distribution differences between participants and non-participants. Subsequently, I performed an Analysis of Variance (ANOVA) to check if NEETs' types (inactive and unemployed) were equivalent regarding the main demographics and to also assess how these groups compared regarding the different study variables.

Finally, I assessed the associations between all factors and agency and pathways estimates using a Linear Mixed Model (LMM) approach. LMMs are extensions of linear regression models that include random effects and correlated errors (Walker et al., 2019). I followed this approach by specifying a random intercept for each participant based on a Maximum Likelihood (ML) estimation method. To implement LMMs in SPSS software, the data set was organized in a long format, enabling the analysis of longitudinal data. This means that data points for each variable were aggregated in one whole measure. To choose the most robust solution, I assessed the model fit considering AIC and BIC indexes. Lower AIC values mean that a model is closer to the truth, while BIC is an estimate of a function of the posterior probability of a model being true, under a certain Bayesian setup, so that a lower BIC is a better fit with reality. I considered both fit indexes, as they can help establish a balanced decision between the solution best fitting reality, provided by BIC, and one that enables relevant information to be retained, usually provided by AIC (Kuha, 2004).

I run a baseline model setting agency as the dependent value, while selecting time and NEET type as fixed factors. The remaining factors were included as random factors in subsequent models being added and dropped out. Factors were included by blocks, following the different layers of the bioecological model. While conducting all these iterative analyses, I checked fit indexes to assess model fit. Fit indexes for each model are presented in Appendix 1. After establishing the most suitable model, I added interaction terms between NEET type and each of the factors describing the social ecology of hope, namely social support, PES support, and collectivism. Interaction terms were tested one at a time. The same procedure was then repeated for pathways. Fit indexes were again considered for retaining the interaction effects.

## Results

### Preliminary analysis

Descriptive estimates summarized in Table 1 show that all measures were within the acceptable range values for skewness and kurtosis. The average estimates of social support and PES support decreased between Time 1 and Time 2, while increasing from Time 2 to Time 3. Conversely, collectivism average estimates remained stable between Time 1 and Time 2, increasing from Time 2 to Time 3. Importantly, agency and pathways average estimates increased between Time 1 and Time 3, but for both hope dimensions the highest average estimates were found for Time 2.

I also found no significant differences in the distribution by age, gender, educational level and NEET status among participants and non-participants.

[Table 1]

**Univariate analyses of variance**

Tables 2 and 3 depict univariate analyses. Inactive and unemployed NEETs were equivalent regarding the main demographic variables. Regarding the study variables, inactive NEETs showed significantly higher estimates for PES support in Time 2 ($p <$ .001). Conversely, unemployed NEETs showed significantly higher estimates for collectivism ($p <.01$), agency ($p <.01$), and pathways ($p <.05$), estimates for Time 2.

[Tables 2 and 3]

**Bivariate correlations**

Bivariate correlation analysis showed four trends. Firstly, in general, the individual factors (e.g., gender) were seldom associated with each other or the other factors at higher ecological levels and outcome variables, across the different data collection moments, with only a few exceptions (e.g., collectivism was significantly lower among men). Secondly, there was a pattern of small positive correlations between collectivism, PES support, sense of community, and social support (e.g., collectivism – T1 and sense of community – T1). Thirdly, agency and pathways increments were often associated with stronger estimates of most of the factors included in the model, except for the individual factors. Finally, and as expected, agency and pathways estimates across the different assessment points denoted moderate to strong positive correlations between each other.

[Table 4]

**Linear Mixed Models**

**Main effects**

I retained the 6-factor model including all factors for agency, except for age and educational level. Fit indexes were lower compared to the baseline and the remaining models (baseline model: AIC = 3887.15; BIC = 3922.82; 6-factor model: AIC =

3863.91; BIC = 3917.24). According to Table 5, agency levels in Time 2 were significantly higher than agency estimates in Time 3 ($B$ =1.47; $p$ <. 05). Moreover, agency levels were significantly lower across the study among women compared to men ($B$ = -1.10; $p$ <.05).

I also retained the 6-factor model including all factors for pathways. AIC index was lower compared to the baseline and the remaining models. The BIC index, however, was higher compared to the baseline model (baseline model: AIC: 3861.86; BIC: 3897.54; 6-factor model: AIC = 3855.66; BIC = 3909.18). I opted for retaining the 6-factor model not only because it fitted better than any of the other tested solutions, but also because it balanced model fit purposes with the theoretical meaningfulness of the selected model. According to Table 5, average pathways levels in Time 2 were significantly higher compared to agency estimates in Time 3 ($B$ =1.47; $p$ <. 001).

[Table 5]

**Interaction effects**

I found interaction effects for agency estimates between NEET type and social support, NEET type and PES support, as well as between NEET type and collectivism. However, only the inclusion of the interaction term between NEET type and PES support significantly led to a better fit compared to that of the 6-factor model retained for testing main effects (AIC = 3855.75; BIC = 3917.52). Considering this model, I found that an increase in PES support contributed significantly to increase inactive NEETs' agency estimates ($B$ = .12; $p$ < .001). As a result, while inactive NEETs at a lower level of PES support presented worse agency levels across the study timeline, when compared to unemployed NEETs in an identical condition of PES support, the reverse was observed in a condition of higher PES support. Graph 1 presents this interaction effect.

I found similar interaction effects for pathways estimates between NEET type and social support, NEET type and PES support, as well as between NEET type and collectivism. However, in this case, I retained two of these effects. Firstly, the inclusion of the interaction term between NEET type and PES support significantly led to a better fit compared to of the 6-factor model retained for testing main effects, as measured by the AIC fit index (AIC = 3855.75), but not in the case of the BIC index (BIC = 3917.52). After graphic inspection of the interaction terms, I decided to retain this model. Therefore, I found that PES support was significant for inactive NEETs ($B$ = .15; $p < .001$). Nevertheless, while both inactive and unemployed NEETs' rates decreased as PES support increased, inactive NEETs' pathways rates decreased less when matched with higher PES support. Moreover, they became higher than unemployed NEETs' pathways estimates in identical levels of high PES support, conversely to what happened in a condition of lower PES support.

Secondly, I also found that the interaction between NEET type and collectivism led to a better model fit overall, compared to the 6-factor model retained for assessing main effects (AIC = 3846.47; BIC = 3908.91). In this case, the interaction effect was relevant for unemployed NEET ($B$ = .25; $p <.001$). Specifically, while at lower levels of collectivism, pathways levels were worse among unemployed NEETs when compared to inactive NEETs in an identical situation, the reverse happened at higher levels of collectivism, with unemployed NEETs displaying higher pathways levels compared to inactive ones. Graphs 1 to 3 illustrate these interactions effects.

[Graphs 1 to 3]

## Discussion

With my work driven by the bioecological model, I reached three main findings across the three proposed research hypothesis.

Hypothesis 1 aimed at assessing the associations of individual factors with hope levels across the pandemic period. I found that women presented significantly worse agency and pathways levels of evolution than men during the covered pandemic period. This finding is supported by a mounting literature demonstrating that life prospects for vulnerable rural young women, are obscured by widespread gender stereotypes imposing strict division of social and professional duties and often limiting women to family care tasks (Bæck, 2016; Morris, 2015). Thus, female NEETs in rural areas are frequently inactive due to extensive family obligations thwarting their agency and perceived capacity to achieve goals outside the family sphere (Sadler, 2015; Mascherini, 2019). This strict gender role division and its impact on job-related correlates and employment are greater in Southern European regions including in The Azores (Almeida & Simões, 2020). Moreover, existing evidence underscores that preexistent gender inequalities translated into lower women's participation in the labor market, as well as traditional gender-role attitudes regarding parenting or work-family balance were extended further by the pandemic. Gender inequalities resulting from the pandemic are, however, stronger when the condition of being a woman intersects with social vulnerability conditions, such as being NEET (e.g., Fisher & Ryan, 2021). Thus, Hypothesis 1 was only marginally supported by evidence as other individual factors beyond gender were not significantly associated with hope dimensions.

Hypothesis 2 specifically aimed at testing if different levels of PES support had distinct effects across inactive and unemployed NEETs throughout the pandemic. I found that while inactive NEETs' agency estimates increased because of an increment in PES support, unemployed NEETs' estimates decreased over time to a point that they were below inactive NEETs' agency rates at higher levels of PES support. It is significant that while the perceived ability to achieve goals described by pathways

decreased for both groups, this decrease was less pronounced for inactive NEETs as PES support increased. Several reasons can help to explain this unexpected result. Firstly, PES support during the pandemic was provided mostly through digital means. Recent reports (e.g., International Labor Organization, 2022) have shown that digitalization promises to increase the coverage of PES services and support. However, a dramatic shift from face-to-face to digitally mediated interactions can create unattended results across different NEETs' subgroups. Unemployed NEETs are those actively searching for a job, meaning they turn more consistently for PES support. As the services were shut-down during the pandemic period and all support was delivered by digital means, PES role might have been seen as less effective in offering advice or job offers, triggering weaker hope-related cognitions. Conversely, digital access for the inactive NEETs might have been more helpful in activating hope-related reasoning because the traditional face-to-face PES approach is much harder for these NEETs for various reasons (e.g., family care and physical impairments, among others). Furthermore, while unemployed NEETs were making efforts to find a job during the pandemic, inactive NEETs were not, at least according to official records. Therefore, it is reasonable to consider that due to lockdown and the deceleration of regional economic activity, unemployed NEETs were more frequently finding it difficult to meet their employment needs with the provided PES support (Eurofound, 2021) thus contributing to more negative agency perspectives, despite greater PES support being acknowledged. In sum, I did find evidence supporting Hypothesis 2. Specifically, from a bioecological perspective, there was a significant interaction between a specific NEET attribute at the individual level (NEET type) and PES support at the exosystem level.

Hypothesis 3 specifically aimed at testing if different levels of collectivism support had distinct effects across inactive and unemployed NEETs during the

pandemic. I found that stronger collectivism perspectives came with an increase in the ability to generate plans to meet goals. However, at higher levels of collectivism, unemployed NEETs showed more positive and significant pathways estimates compared to inactive NEETs, conversely to what happened at lower levels of perceived collectivism. Overall, predominant collectivistic views limit emerging adults' self-expression and hope (Hult et al., 2023). This trend is expected in rural areas (Athanasou & Torrance, 2002) including in The Azores. Indeed, other reports show that in this region family ties and values are associated with stronger cognitive attributes, such as self-efficacy (Simões et al., 2018). The specific interaction between collectivism and NEET type, which was significant for unemployed NEETs' perceived ability to achieve goals reflects different experiences on how loyalty to family and ingroup perceptions are associated with goal-related fulfillment as described in the literature. Overall, inactive NEETs are more often dedicated to family duties (Sadler et al., 2015), but are also more dependent on their family ties for accomplishing economic needs, for reasons such as mental or physical impairment (Mascherini, 2019). Therefore, their plans and the ways in which they anticipate being successful reflect their greater dependence on close ties and are, thus, clearly aligned with more immediate needs. In turn, for unemployed NEETs, this association might be more instrumental, future-oriented and, therefore, significant. Indeed, unemployed NEETs tend to be in and out of the labor market in rural areas. In The Azores, this is a very significant trend due to high levels of precariousness among emergent adults (Governo Regional dos Açores, 2022). Sharing worldviews and values with family and the community is a means for this NEET subgroup to have access to certain tangible resources, such as job opportunities coming through close social ties. This can have a potential impact on the perceived ability to achieve goals, especially when even high levels of perceived PES support are less

effective in promoting the same hope dimension. Hypothesis 3 was, therefore, supported by the evidence, according to the bioecological model, by showing a significant interaction between NEET condition, at the individual level, and collectivism at the macrosystem level.

**Implications and limitations**

I see four practical implications stemming from these findings.

Firstly, the results show how female NEETs hope perceptions in The Azores were more affected during COVID-19. Thus, inequalities between men and women were further stretched by the pandemic. This calls for action at two levels. At a more structural level, it is important that the region addresses the need for promoting more egalitarian gender-role attitudes through specific programs and policies targeting the whole population. Traditional beliefs about gender-specific roles are still prevalent in The Azores Islands, with a negative impact on women's different personal life areas (work, family or leisure). At the labor market level, the specific requirements of female NEETs, as well as inefficiency of high levels of PES support for unemployed NEETs due to lack of resources or distrust translates into a lack of more nuanced, person-centered approaches delivered by public services. Indeed, the services struggle to individualize approaches to effectively support subgroups of NEETs in developing necessary skills and attitudes, including more positive future-oriented prospects. In addition, these programs must be more in line with local resources and economic opportunities. This demands for greater involvement of the third sector to tackle the competition between informal resources and PES support in promoting future-oriented cognitions and, hopefully, stronger employability.

Secondly, digitalization can create new and more appropriate ways to interact with harder to reach NEETs, such inactive or female NEETs. These opportunities are relevant for regions such as The Azores, an archipelago composed of dispersed islands which are hard to reach. However, digitalization cannot be a panacea for services improvement. A balanced mix between the most appropriate digital tools, face-to-face support and making relevant community-based resources available (e.g., kindergartens) for outreaching specific subgroups of NEETs must be better developed and assessed in the coming years.

Thirdly, it is important that authorities reflect and act over the implications of the pandemic in terms of trust in institutions, particularly in deprived regions. Prior to the pandemic, fragmented and shrinking public services were already creating trends in regions of Southern Europe such as familism, meaning an overreliance on the support from family members to find a job or accessing other resources, including among emergent adults (Bello & Cuzzocrea, 2018). If after the pandemic the services fail to reposition themselves in the communities, there is a serious risk of perpetuating social disadvantage across generations. This constitutes a serious challenge, because NEETs excessive dependance on informal ties for job search and finding often results in greater odds of ending up in sectors with a lower economic return or in perpetuating precarious family businesses.

Finally, less than four percent of the participants reported to be involved in social structures such as clubs, associations or alike. This means that besides being outside the labour market and education and training, NEETs who were involved in this study reported a very low level of social participation. This confirms past research showing important levels of isolation among NEETs and pinpoints that out-reaching to NEETs continues to be a major problem (Smoter, 2022). A combination of policies, digital tools

and possibilities, such as the ones used by PES as well as civil society initiatives, including those co-developed with and by young people, is required to address this major caveat of (re)engaging with NEETs (Ferreira et al., 2024).

My research has limitations. It was possible to retain two major profiles of NEETs in this study (inactive and unemployed). The groups were balanced in numbers and were equivalent across the main sociodemographic factors. However, it was not possible to proceed to a more nuanced analysis based on NEETs' typologies proposed by, for instance, Mascherini (2019). This would deliver a more sophisticated analysis of NEETs' socioecology of hope, which nevertheless also requires a significantly greater number of participants. It was not possible to reach out to many NEETs who were not registered in PES. There is, therefore, an undetermined number of NEETs who are invisible for the services who were not targeted. Finally, the fact that PES sent out the questionnaire ensured to reach out a greater number of NEETs. However, it did not prevent a disproportionate participation of women, the unexpected participation of more inactive male NEETs, compared to unemployed NEETs, perhaps corresponding to formerly long-term unemployed who gave up looking for a job but that remain in PES databases and may have also affected the voluntary involvement of the participants.

## Conclusion

From a bioecological perspective, my study shows that gender is a pivotal source of hope levels. Indeed, there are important disparities among female and male NEETs in this domain, with hope perceptions being worse for women in a critical period such as the most recent pandemic. My study also displays how interactions between different levels of the bioecology of rural NEETs in The Azores play a role in shaping hope levels. The interactions between NEET condition (unemployed *vs* inactive) PES support

and between NEET condition and collectivism levels illustrated how key factors combine across the different layers of the model to shape hope levels. Therefore, purposeful, and realistic hope promotion among NEETs must consider rural areas' structural challenges (e.g., gender gap) as well as the local conditions and resources of the labor market and services. Moreover, interventions developed by PES services need to target NEETs' diversity, while considering community views and resources. Upcoming trends, such as PES digitalization might represent an opportunity on that matter, but its effects on NEETs beyond coverage still need to be investigated.

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Table 1. Descriptive statistics for main factors and outcome variables

| | M (*SD*) | Min-Max | Alpha | Skewness | Kurtosis |
|---|---|---|---|---|---|
| 1.Social support (T1) | 39.34 (*7.91*) | 7-49 | .82 | -.80 | .51 |
| 2. Social support (T2) | 35.00 (*7.59*) | 7-49 | .82 | .32 | -.92 |
| 3. Social support (T3) | 37.84 (*9.71*) | 7-49 | .80 | -1.21 | -2.09 |
| 4. PES support (T1) | 29.03 (*5.25*) | 12-60 | .96 | -1.01 | 1.63 |
| 5. PES support (T2) | 14.88 (*6.38*) | 12-60 | .96 | .18 | -.82 |
| 6. PES support (T3) | 28.79 (*5.68*) | 12-60 | .96 | -1.01 | .81 |
| 7. Collectivism (T1) | 19.50 (*5.83*) | 6-30 | .84 | -.34 | -.45 |
| 8. Collectivism (T2) | 19.51 (*4.70*) | 6-30 | .81 | .12 | .02 |
| 9. Collectivism (T3) | 20.50 (*5.48*) | 6-30 | .84 | -.42 | .33 |
| 10. Agency (T1) | 21.84 (*5.84*) | 4-32 | .78 | -.88 | .89 |
| 11. Agency (T2) | 23.17 (*4.52*) | 4-32 | .74 | -.78 | .30 |
| 12. Agency (T3) | 22.63 (*5.38*) | 4-32 | .81 | -.98 | 1.35 |
| 13. Pathways (T1) | 23.69 (*5.61*) | 4-32 | .80 | -.49 | -.06 |
| 14. Pathways (T2) | 25.92 (*4.33*) | 4-32 | .80 | -1.02 | .33 |
| 15. Pathways (T3) | 24.62 (*5.52*) | 4-32 | .87 | -.74 | .56 |

Table 2. Results of chi-square groups: Gender, age and school level by NEET type

| **Demographic variables** | | | **Unemployed NEET** | **Inactive NEET** | **Pearson $\chi^2$** |
|---|---|---|---|---|---|
| Gender | Male | Count | 31 | 41 | $\chi 2$ (1, 212) = 1.69, $p$ =.246 |
| | | Expected count | 35.5 | 36.5 | |
| | | % within group | 43.10% | 56.90% | |
| | Female | Count | 74 | 67 | |
| | | Expected count | 69.5 | 71.5 | |
| | | % within group | 52.50% | 47.50% | |
| Age | 18-24 | Count | 41 | 41 | $\chi 2$ (1, 212) = .03, $p$ =.889 |
| | | Expected count | 40.4 | 41.6 | |
| | | % within group | 50.00% | 50.00% | |
| | 25-31 | Count | 64 | 67 | |
| | | Expected count | 64.6 | 66.4 | |
| | | % within group | 48.90% | 51.1% | |
| Education level | Basic | Count | 46 | 53 | $\chi 2$ (1, 212) = .50, $p$ =.494 |
| | | Expected count | 48.6 | 50.4 | |
| | | % within group | 46.50% | 53.50% | |
| | Secondary/Tertiary | Count | 58 | 55 | |
| | | Expected count | 55.4 | 57.6 | |
| | | % within group | 51.30% | 48.70% | |

Table 3. Descriptive statistics by NEET type and mean comparisons between inactive and unemployed NEETs

| | Unemployed NEETs (*n* = 105) | Inactive NEETs (*n* = 108) | *F* ANOVA |
|---|---|---|---|
| | M (*SD*) | M (*SD*) | |
| 1.Social support (T1) | 40.00 (*7.38*) | 38.71 (*8.05*) | $F$ (1, 212) = 1.44, $p$ =.236 |
| 2. Social support (T2) | 35.84 (*6.68*) | 34.19 (*8.33*) | $F$ (1, 212) = 2.54, $p$ =.112 |
| 3. Social support (T3) | 38.47 (*10.06*) | 37.22 (*9.36*) | $F$ (1, 212) = .874, $p$ =.351 |
| 4. PES support (T1) | 29.12 (*5.13*) | 28.94 (*5.38*) | $F$ (1, 212) = .061, $p$ =.806 |
| 5. PES support (T2) | 13.17 (*6.53*) | 16.56 (*5.77*) | $F$ (1, 212) = 16.16, $p$ < .001 |
| 6. PES support (T3) | 28.55 (*5.51*) | 29.03 (*5.86*) | $F$ (1, 212) = .372, $p$ =.543 |
| 7. Collectivism (T1) | 19.81 (*5.19*) | 19.20 (*6.39*) | $F$ (1, 212) = 575, $p$ =.449 |
| 8. Collectivism (T2) | 20.43 (*4.21*) | 18.62 (*4.99*) | $F$ (1, 212) = 8.18, $p$ = .005 |
| 9. Collectivism (T3) | 20.44 (*5.58*) | 20.56 (*5.40*) | $F$ (1, 212) = .028, $p$ =.866 |
| 10. Agency (T1) | 21.74 (*6.02*) | 21.95 (*5.67*) | $F$ (1, 212) = .069, $p$ =.793 |
| 11. Agency (T2) | 24.10 (*4.85*) | 22.26 (*3.98*) | $F$ (1, 212) = 9.14, $p$ =.003 |
| 12. Agency (T3) | 22.75 (*5.89*) | 22.51 (*4.86*) | $F$ (1, 212) = .106, $p$ =.745 |
| 13. Pathways (T1) | 23.52 (*6.23*) | 23.85 (*4.97*) | $F$ (1, 212) = .181, $p$ =.671 |
| 14. Pathways (T2) | 26.51 (*4.22*) | 25.34 (*4.36*) | $F$ (1, 212) = 4.06, $p$ =.045 |
| 15. Pathways (T3) | 24.66 (*6.04*) | 24.56 (*4.98*) | $F$ (1, 212) = .018, $p$ =.895 |

Table 4. Bivariate correlations

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Gender | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. Age | -.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3.Educational level | .04 | .10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. NEET type | -.09 | .01 | -.05 | ---- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. Social support (T1) | .09 | .01 | .06 | -.08 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. Social support (T2) | .15* | .08 | .16* | -.11 | .40** | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. Social support (T3) | .09 | -.03 | -.01 | -.06 | .21** | .40** | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. PES support (T1) | .11 | -.02 | -.21** | -.02 | -.02 | .21** | .09 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. PES support (T2) | -.05 | -.06 | -.18* | .27** | -.09 | -.02 | .16* | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. PES support (T3) | -.08 | .12 | .01 | .04 | .09 | -.09 | .08 | -.12 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. Collectivism (T1) | .11 | .04 | -.15* | -.05 | .17* | .09 | .12 | .01 | .03 | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. Collectivism (T2) | -.01 | .08 | -.01 | -.19** | .12 | .17** | .18 | -.40** | .02 | .37** | --- | --- | --- | --- | --- | --- | --- |
| 12. Collectivism (T3) | -.15* | .08 | -.13 | .01 | .01 | .12 | .11 | .03 | .19** | .22** | --- | --- | --- | --- | --- | --- | --- |
| 13. Agency (T1) | -.05 | .06 | -.05 | .02 | .36** | .01 | .03 | -.09 | .06 | .20** | .13 | --- | --- | --- | --- | --- | --- |
| 14. Agency (T2) | -.12 | .06 | -.13 | -.20** | .17* | .08 | .10 | -.19** | .12 | .22** | .16* | .38** | ---- | --- | --- | --- | --- |
| 15. Agency (T3) | -.01 | .01 | .07 | .02 | .08 | .36** | .17* | -.04 | .23** | .14* | .27** | .37** | 27** | --- | --- | --- | --- |
| 15. Pathways (T1) | -.04 | .01 | -.06 | -.03 | .26** | .17* | -.08 | -.08 | .04 | .14* | .10 | .74** | .24** | 35** | --- | --- | --- |
| 16. Pathways (T2) | -.13 | .03 | -.19* | -.14* | .12 | -.04 | .01 | .01 | .03 | .17** | .16* | .28** | .74** | .22** | 34** | --- | --- |
| 17. Pathways (T3) | -.04 | -.01 | -.01 | -.01 | .08 | .21** | .09 | -.01 | .17* | .12 | .24** | .36** | .28** | .80** | .36** | .33** | --- |

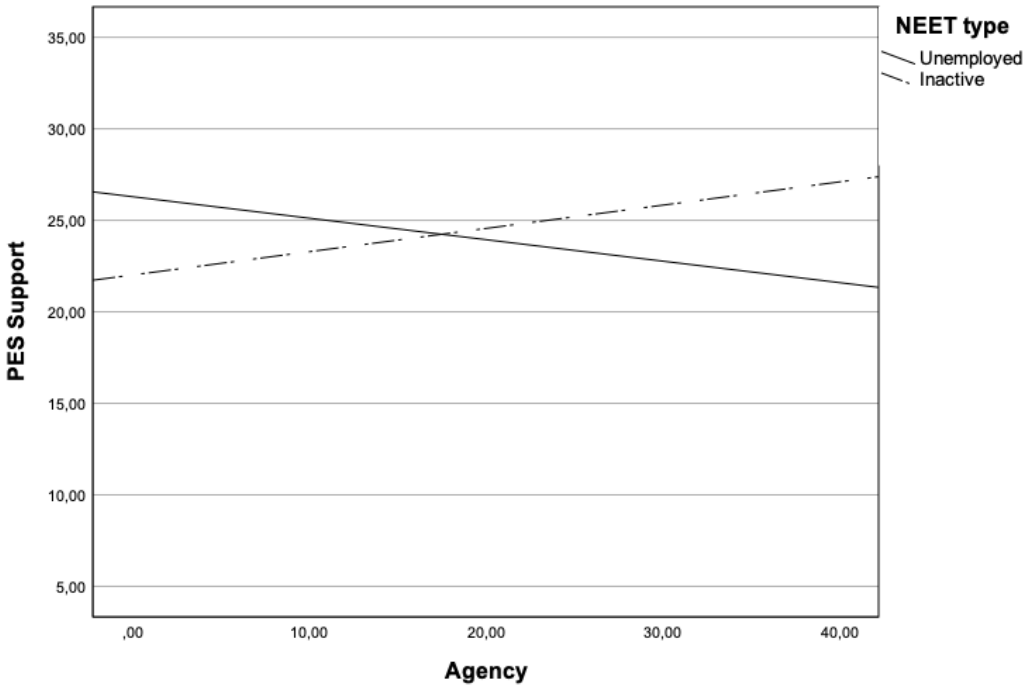
*$p$ <.01; ** $p$ <.001

Table 5. Linear mixed models for hope dimensions

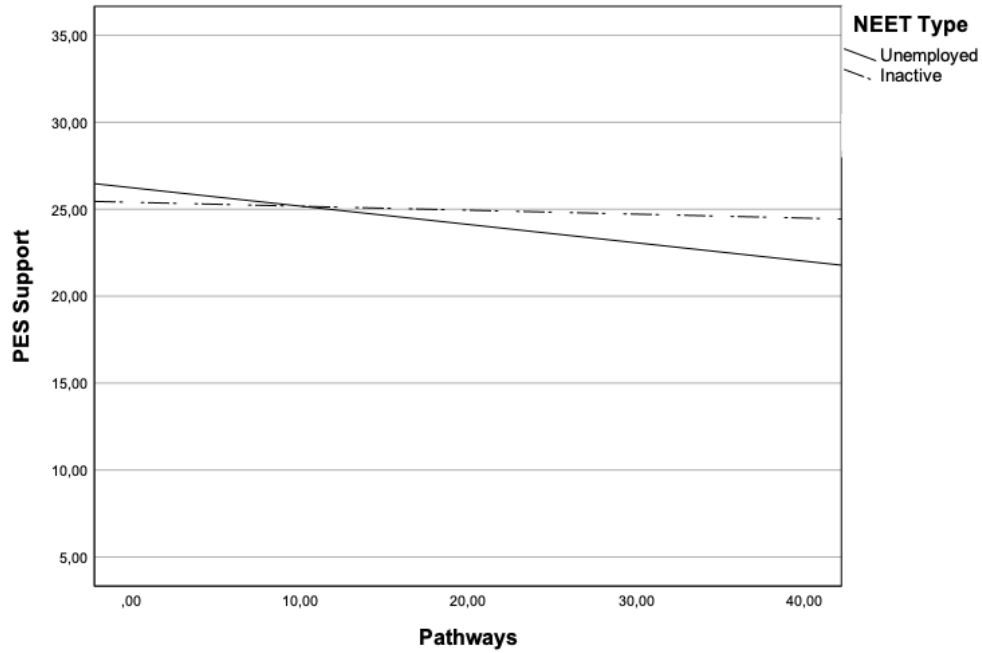
| | Agency | | | Pathways | | |
|---|---|---|---|---|---|---|
| | B | S.E. | 95% IC | B | S.E. | 95% IC |
| Time 1[a] | -.70 | 1.42 | [-1.68; .28] | -.91 | .47 | [-1.89; .06] |
| Time 2[a] | 1.47* | .53 | [.34; 2.59] | 2.87*** | .57 | [1.75; 3.99] |
| NEET type[b] | .67 | .47 | [-.26; 1.60] | .49 | .47 | [-.45; -1.42] |
| Gender[c] | -1.10* | .49 | [-2.08; -.12] | -.88 | .50 | [-1.86; .11] |
| Social support | .62 | .01 | [<.01; .10] | .01 | .01 | [<.001; .19] |
| PES support | .44 | .01 | [<.01; .16] | .01 | .02 | [<.001; .08] |
| Collectivism | .68 | .06 | [<.01; .67] | .01 | .04 | [<.001; .30] |

Notes: reference categories: a. time 3; b. men; c. inactive NEETs.

Graph 1. Agency: Interaction effects NEET type*PES support



Graph 2. Pathways: Interaction effects NEET type*PES support



Graph 3. Pathways: Interaction effects NEET type*Collectivism